Metropolitan Water District of Southern California

2010 Long Range Finance Plan

December 1, 2010

Draft

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Executive Summary

Executive Summary

The ability to ensure a reliable supply of high quality water for Metropolitan's 26 member agencies depends on Metropolitan's ongoing ability to fund operations and maintenance, maintain and augment local and imported water supplies, fund replacements and refurbishment of existing infrastructure, and invest in system improvements. Metropolitan's 2010 Long Range Finance Plan (2010 LRFP) is the ten-year plan supporting long range resource, capital investment and operational planning. As such, it includes a forecast of future costs and the revenues necessary to support operations and investments in infrastructure and resources that are derived from the 2010 Update to the Integrated Resources Plan (2010 IRP Update) and other planning processes while conforming to Metropolitan's financial policies. These financial policies, which address reserve levels, financial indicators, and capital funding strategies, ensure sound financial management and fiscal stability for Metropolitan.

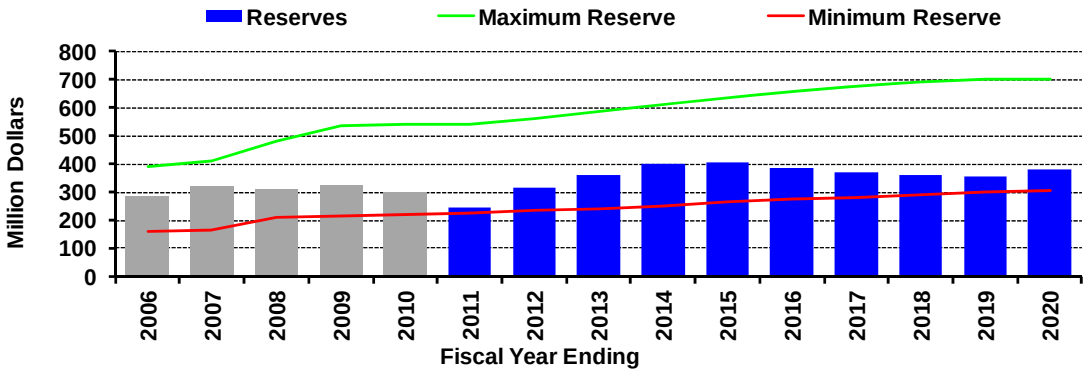
This is the sixth update of the LRFP. The first LRFP was completed in December 1986, and was followed by updates in 1987, 1988, 1995, 1999 and 2004. Since the first LRFP was adopted, numerous financial policies and recommendations have been implemented including:

- Creating the Water Rate Stabilization Fund;
- Establishing the ability to impose a water standby and availability of service charge;
- Broadening authority to invest funds in Metropolitan's investment portfolio;
- Creating the Pay-As-You-Go Fund;
- Developing a PAYG policy and funding strategy; renaming the fund the Replacement and Refurbishment Fund and setting a maximum end-of-year fund balance of $95 million;
- Developing a variable rate debt management program; managing variable rate exposure based on the net dollar impact to Metropolitan of changes in interest rates; limiting variable rate debt to 40 percent of total debt outstanding;
- Implementing a working capital reserve policy;
- Determining the minimum and maximum Water Rate Stabilization Fund reserve targets; and
- Clarifying use of the fixed charge coverage ratio of 1.2 times as a financial target.

A critical element to any long-term planning process is the input from the member agencies and their customers. This is particularly important since Metropolitan's water rates play an important role in the investment decisions regarding local resources. This

update of the 2010 LRFP has been drafted with input from the member agencies and the Business and Finance Committee. Beginning in mid-2007, Metropolitan formed the LRFP Workgroup and began meeting with member agency staff to solicit input into the development of the 2010 LRFP. Approximately two dozen meetings have been held to discuss rate and financial policy issues. In addition, briefings have been provided to the Business and Finance Committee throughout the process.

Figure 1: 2010 LRFP Financial Metrics



Ave Rate Increase	2%	3%	6%	14%	20%	7.5%	7.5%	5%	5%	5%	6%	6%	6%	6%	6%
PAYGO, $M	88	95	43	30	37	45	125	125	125	125	125	125	125	125	125
Rev. Bond Cvg	1.8	2.2	1.8	1.8	1.6	1.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
Fixed Chg Cvg	1.3	1.7	1.3	1.3	1.1	1.0	1.5	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.3

Figure 1 summarizes the financial metrics of the 2010 LRFP. The 2010 LRFP includes a rate forecast, given Metropolitan's existing cost-of-service and rate structure. The base case forecast shows that the average water rate will increase at an annual average rate of approximately 5.6 percent over the next ten years. By 2020, the average rate is expected to be $1,205 per acre-foot based on the planning assumptions included in the 2010 IRP Update, an average annual increase of $52 per acre-foot. Components of the rate structure may increase at different rates depending on the costs recovered. The full-service treated Tier 1 water rate is estimated to be approximately $1,214 per acre-foot by January 1, 2020, compared to $744 per acre-foot on January 1, 2011.

These estimated rate increases result from increasing costs for imported water supplies, investments in reliability through conservation and local resources, system improvements to water treatment, investments to maintain the conveyance and distribution system, and increasing operating and maintenance costs. In alignment with the 2010 IRP Update, the majority of future growth in retail demands is expected to be met either by the development of local supply resources or by conservation efforts necessary to meet state policy to reduce per capita retail water use by 20 percent by 2020. These impacts result in a reduction to Metropolitan’s expected sales by 2019/20 compared to 2011/12. Annual expenditures, excluding funding of the CIP, are expected to increase from $1.4 billion in 2010/11 to $2.1 billion by 2019/20, or an annual average increase of about 5 percent. Metropolitan's share of the costs to address the Bay-Delta are expected to increase to about $150 million by 2019/20. During this same period, capital investments are

expected to be about $4.0 billion. To finance these capital investments, the 2010 LRFP anticipates funding at least $125 million per year of replacement and refurbishment capital outlays from water sales revenues, and by issuing an additional $2.8 billion in revenue bond debt.

The planning documented in the 2010 IRP Update and the 2010 LRFP is necessary for Metropolitan to successfully fund the many investments necessary to meet the challenges facing the region over the next ten years with manageable rate increases. Among the more significant challenges are:

- Investing in the elements of the 2010 IRP Update to ensure reliable water supplies for Metropolitan's service area.

- Continuing to develop cost-effective dry-year programs that, when combined with storage, transfers, and exchanges developed through the Quantification Settlement Agreement (QSA), provide the ability to maximize Colorado River Aqueduct deliveries during dry years.

- Ensuring viable use of Metropolitan's State Water Project supplies during wet, normal, and dry years in ways that mitigate environmental impacts and improve reliability in the delivery of existing supplies through mid- and long-term Delta improvements.

- Implementing capital improvements at treatment plants to ensure compliance with increasingly stringent water quality regulations, while meeting the public's expectations regarding the aesthetics of their water supply.

- Funding an estimated $4.0 billion capital program that provides projects meeting water quality, reliability, stewardship and information technology directives.

- Collaborating with member agencies to achieve higher retail water use efficiency, in compliance with state policy.

- Incentivizing local supply development, including recycled water, groundwater recovery and local storage.

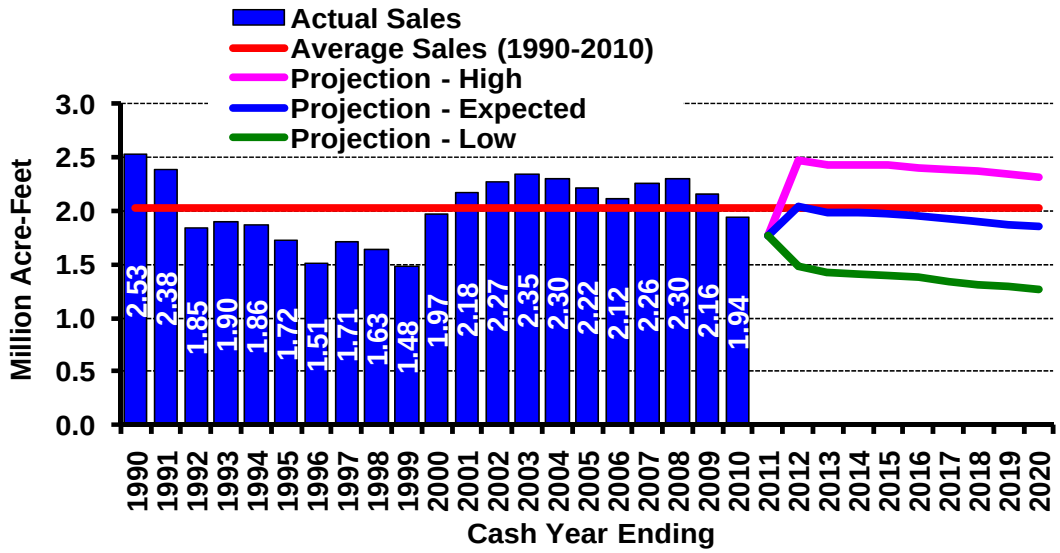
Water Sales Forecast

Water sales revenue provides approximately 80 percent of the revenues necessary to support Metropolitan's capital and operating costs. For financial planning purposes, it is expected that demand for Metropolitan supplies will decrease from 2.0 million acre-feet in 2011/12 to 1.9 million acre-feet by 2019/20. This is significantly different from prior long range finance plans, which have forecasted increasing sales levels. The primary reason for this change is that the 2010 IRP Update contemplates continued investment in local resources, primarily water recycling and ocean desalination, and retail and regional conservation measures to meet state policy regarding water use efficiency. By 2019/20, conservation and water efficiency initiatives will result in a further reduction of regional water use by an estimated 580,000 acre-feet. Local resource augmentation will result in

approximately 600,000 acre-feet of local supply, including production already anticipated from existing programs. These local supplies and increased conservation and water use efficiency reduce the need for imported water and expected water sales by Metropolitan.

Figure 2 shows historic and forecast water sales. Since 1989/90, Metropolitan sales have averaged 2.0 million acre-feet. As noted above, expected sales are forecast to decrease compared to those levels to 1.9 million acre-feet by 2019/20. Under changed economic, climatic and hydrologic conditions, sales over the next ten years could range between 1.3 million acre-feet and 2.4million acre-feet.

Figure 2: Water Sales, Historic and Forecast

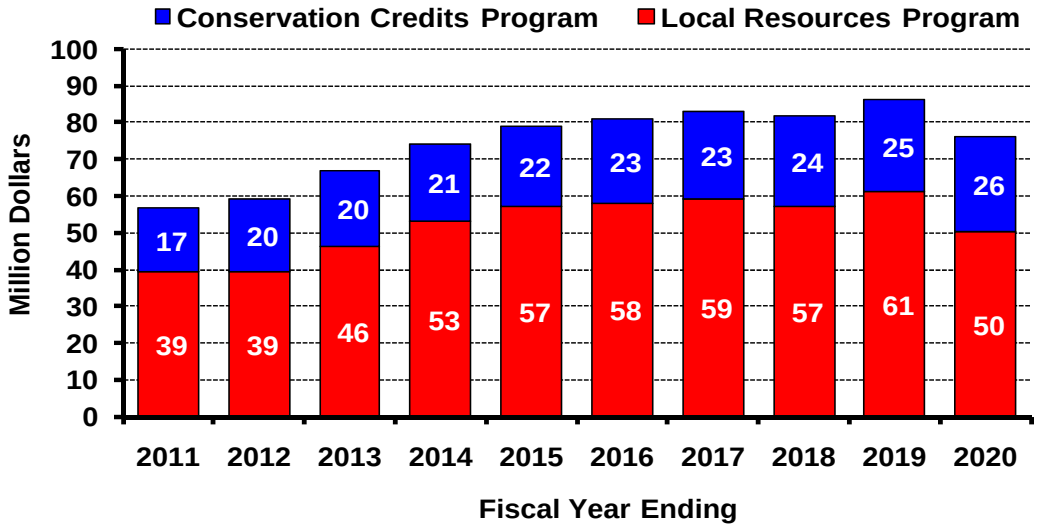


2010 Integrated Resources Plan Update

The 2010 IRP Update is the roadmap for developing a diversified water resource portfolio for urban Southern California that will meet demands through 2035 under foreseeable hydrologic conditions by utilizing an adaptive management approach. Funding the investments in local supplies (e.g., water recycling, groundwater conjunctive use, and conservation), water transfers and storage, and Metropolitan's supply sources on the Colorado River and State Water Project System are important elements of the 2010 LRFP. The 2010 IRP Update includes investments in local resources that will increase annual yield from water recycling, groundwater recovery, and ocean desalination to approximately 600,000 acre-feet by 2019/20.

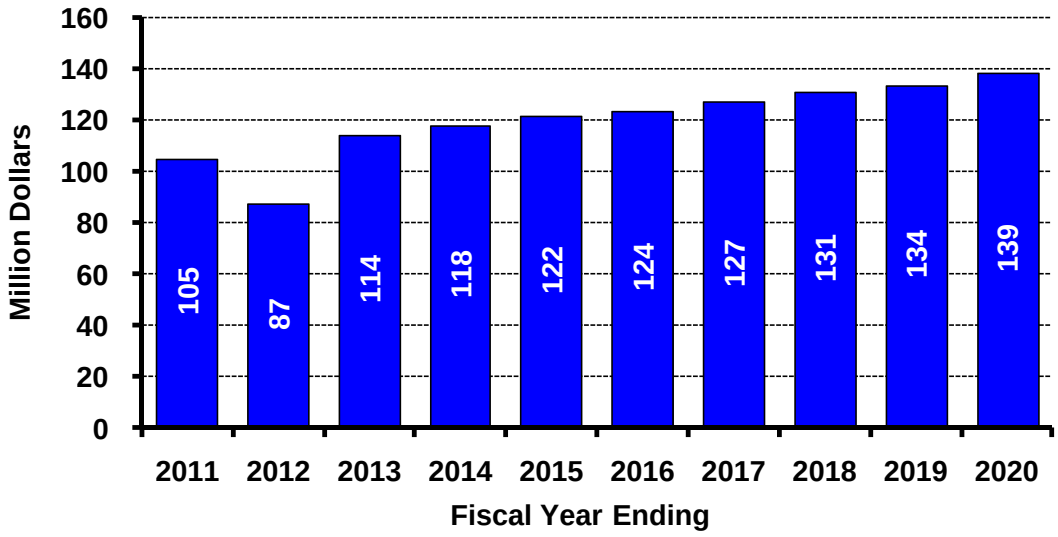
By 2019/20, conservation and water efficiency initiatives will result in an additional reduction of regional water use beyond that already achieved by Metropolitan's conservation programs by an estimated 580,000 acre-feet. Metropolitan will continue to provide funding to offset a portion of the costs for many of these local investments. Forecasted expenditures for these demand management program costs are shown in Figure 3. It is expected that the Water Stewardship Rate will increase by about $17 per acre-foot over the next ten years to fund Metropolitan's contribution.

Figure 3: Demand Management Program Costs



In addition, expenditures will be made to improve the reliability of SWP deliveries through mid- and long-term Delta improvements and develop dry-year programs on the CRA that, when combined with storage, transfers, and exchanges, provide the ability to maximize CRA deliveries. The expenditures for additional water supply programs supplies associated with the CRA and SWP systems are shown in Figure 4.

Figure 4: Supply Program Costs

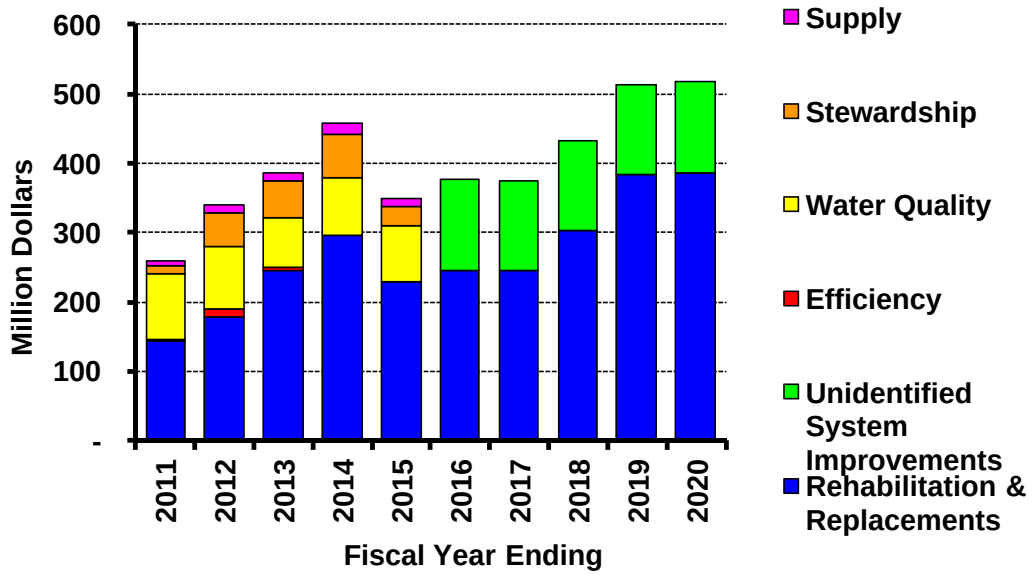


Capital Investment Plan (CIP)

Metropolitan will be investing in infrastructure necessary to treat, store, and deliver water. Many of these investments will be required to repair and replace aging facilities. Figure 3 includes the expected cash flow for these capital investments estimated during the 2010/11 and 2011/12 budgeting processes. The ten-year forecasted CIP through 2019/20 is estimated at $4.0 billion. To help mitigate expected future rate increases and

to reflect revisions to the timing and sizing of capital projects, the CIP is adjusted annually. The major elements of the ten-year forecasted capital program are shown in Figure 5 and summarized in Table 1.

Figure 5: Capital Investment Plan



The CIP will be funded from a combination of bond proceeds and operating revenues. In order to mitigate increases in water rates, provide financial flexibility, and support Metropolitan's high credit ratings including maintaining revenue bond debt service and fixed charge coverage ratios, $125 million per year of R&R projects will need to be paid from current revenues. This level of R&R funding is consistent with the Board policy adopted in June 2002 that more R&R expenditures would be funded from revenues. The R&R expenditures in the 2010 LRFP are capped at $125 million, with the balance funded from debt proceeds. Bond funded expenditures will include a combination of variable and fixed rate debt. Debt has been structured to mitigate near-term rate impacts and smooth out long-term debt service. Table 1 shows total capital expenditures and funding sources. Variable rate debt is used to mitigate interest cost over the long-term, while mitigating interest rate exposure.

Table 1: Capital Expenditures and Funding Sources

Fiscal Year Ending	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
By Driver											
Efficiency	$ 2.0	$ 10.8	$ 3.1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15.9
Rehabilitation & Replacements	142.9	179.3	246.3	296.2	229.3	245.9	244.4	302.1	384.1	387.4	2,657.9
Stewardship	9.4	48.0	54.3	62.0	28.3	-	-	-	-	-	202.0
Supply	8.7	13.4	10.0	15.9	11.3	-	-	-	-	-	59.2
Water Quality	96.9	89.6	72.1	83.6	80.1	-	-	-	-	-	422.3
Unidentified System Improvements	-	-	-	-	-	130.0	130.0	130.0	130.0	130.0	650.0
Total	**$ 259.9**	**$ 341.0**	**$ 385.8**	**$ 457.7**	**$ 349.1**	**$ 375.9**	**$ 374.4**	**$ 432.1**	**$ 514.1**	**$ 517.4**	**$ 4,007.4**
By System Improvements and R&R											
System Improvements	$ 117.0	$ 161.8	$ 139.5	$ 161.5	$ 119.8	$ 130.0	$ 130.0	$ 130.0	$ 130.0	$ 130.0	$ 1,349.5
Rehabilitation and Replacements	142.9	179.3	246.3	296.2	229.3	245.9	244.4	302.1	384.1	387.4	2,657.9
Total	**$ 259.9**	**$ 341.0**	**$ 385.8**	**$ 457.7**	**$ 349.1**	**$ 375.9**	**$ 374.4**	**$ 432.1**	**$ 514.1**	**$ 517.4**	**$ 4,007.4**

Totals may not foot due to rounding.

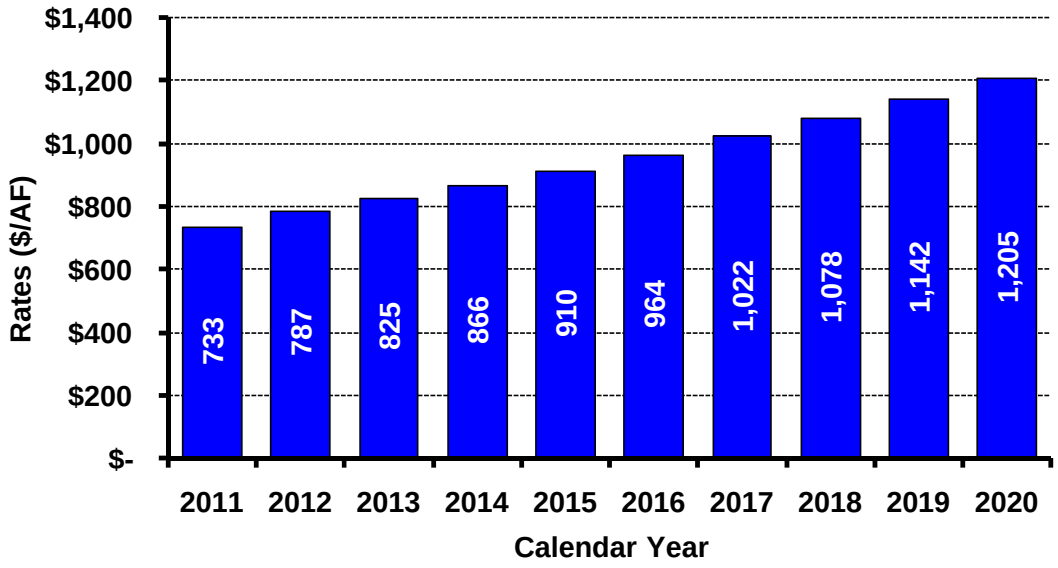
Operating and Maintenance Costs

Basic operating and maintenance (O&M) expenses are expected to rise from $337 million in 2010/11 to about $544 million by 2019/20, an annualized increase of about 5.5 percent. This forecast includes Departmental O&M, variable treatment plant costs, and other O&M expenditures. During this timeframe, inflation is assumed to be 3.5 percent. Items that are driving overall O&M costs up more rapidly than the rate of inflation include rising benefit costs for pensions and medical costs for active and retired employees. In addition, the 2010 LRFP assumes Metropolitan begins setting aside funds to meet future retiree medical costs (Other than pension Post Employment Benefits, or OPEB) much like promised retirement benefits, rather than continuing to pay for retiree medical costs on a pay-as-you-go basis. The 2010 LRFP incorporates $10 million to begin funding OPEB in 2011/12, followed by $15 million in 2012/13 and $20 million in 2013/14 and each year thereafter, fully funding the annual required contribution.

Rate Forecast

Since water sales volumes are declining over the planning period, water rates and charges will need to increase to fund the increase in projected expenditures. Metropolitan's objective is to provide manageable average annual increases in rates and charges at approximately 5.6 percent per year. As shown in Figure 6, the average rate (all rates and charges revenue divided by sales) is expected to increase from $733 per acre-foot in fiscal year 2011 to approximately $1,205 per acre-foot in fiscal year 2020. Actual rate increases will depend on a number of important variables including water sales volumes, the cost of power to pump water on the CRA and the SWP, water quality regulations, the pace of local resource development, the total cost and schedule of the CIP and the rate of increase in operations and maintenance costs.

Figure 6: Average Rate Forecast



Financial Policy Changes

To prepare for these challenges, the following financial policy principles are included for Board affirmation. Metropolitan currently enjoys very favorable credit ratings. These favorable ratings allow Metropolitan to maintain its low-cost borrowing capability and access the capital markets on more favorable terms than other lower rated municipalities throughout the country. Board affirmation of financial policies that support sound financial management and fiscal stability will ensure that Metropolitan continues to be a highly rated credit.

Revenues Set to Meet Costs to Serve, Minimum Reserve Levels

As has been seen from the last several years, Metropolitan's risks to raising necessary revenues are not limited to a wet hydrology, but include a weak economy, mild summer weather and regulatory actions that limit supplies. Maintaining adequate reserve levels will help ensure financial stability during periods of revenue uncertainty, while maintaining liquidity needs and providing financial flexibility. Reserves should not be used to fund systemic cost increases. Therefore, the Board should set rates at levels necessary to fund the costs of providing services to Metropolitan's member agencies and maintain minimum reserve levels.

R&R Levels to Support Established Coverage Targets, Preserve Revenue Bonding Capacity, and Provide Financial Flexibility

In previous LRFPs, the Board restated its commitment to maintain Metropolitan's aging infrastructure. In order to support revenue bond and fixed coverage ratios, provide financial flexibility, and maintain Metropolitan's ability to continue issuing Water Revenue bonds, the 2010 LRFP proposes that $125 million per year of R&R projects be paid from current revenues. Revenue bond coverage is one primary indicator in

determining a municipal entity's ability to fund its annual debt service costs. It measures the degree to which revenues, after paying recurring operating expenditures, are available to fund revenue bond debt service. Using cash from revenues to fund R&R helps to meet Metropolitan's revenue bond coverage target of 2.0 times and the fixed coverage target of 1.2 times, as fixed coverage accounts for the fixed capital costs of the SWP. If Metropolitan were to fund the CIP, including R&R, solely with bond proceeds, future rates would be higher, coverages would be lower, and flexibility would be reduced as the balance sheet was leveraged. Cash funding R&R at higher levels also provides a relief mechanism to ratchet down required expenditures during periods when revenues are uncertain or challenged, as was experienced in the last three Metropolitan budget processes.

Finally, Metropolitan's ability to use Water Revenue bonds to finance capital expenditures is limited under the Act. As of 2010/11, Metropolitan has about $1.4 billion of Water Revenue bonding capacity. If Metropolitan were to use 100 percent bond financing for the $4.0 billion CIP, including R&R, Metropolitan's ability to issue Water Revenue bonds could be limited. While there are financing alternatives Metropolitan could use, they would all be more costly.

The LRFP report is organized as follows:

Section 1 – Aligning with the 2010 Integrated Resources Plan Update (2010 IRP Update) - a description of how the major components of the 2010 IRP Update have been incorporated into the 2010 LRFP, including investments in local resources, conservation and imported supplies;

Section 2 – Financial Forecast - a discussion of the expected financial forecast including expenditures, revenues, financial indicators such as reserve levels and fixed charge coverage ratio and a range of potential outcomes for projected water rates based on risk factors that could affect the expected rate forecast;

Section 3 –Capital Financing Strategy - a detailed discussion of the proposed strategy that will be used to finance capital improvements over the next ten years, including the use of variable rate debt and asset liability management;

Appendix 1 – Bond Refunding Guidelines - a discussion of Metropolitan’s bond refunding parameters, which are used to reduce the carrying cost of debt;

Appendix 2 – Master Swap Policy - the policy adopted by the Board to manage and execute interest rate swaps as a part of Metropolitan’s asset/liability management process;

Appendix 3 – Investment Policy – the policy adopted by the Board to direct investment of Metropolitan funds.

Appendix 4 – Master Revenue Bond Resolution.

Section 1

Aligning with the 2010 Integrated Resources Plan Update (2010 IRP Update)

Section 1.
Aligning with the 2010 Integrated Resources Plan Update
(2010 IRP Update)

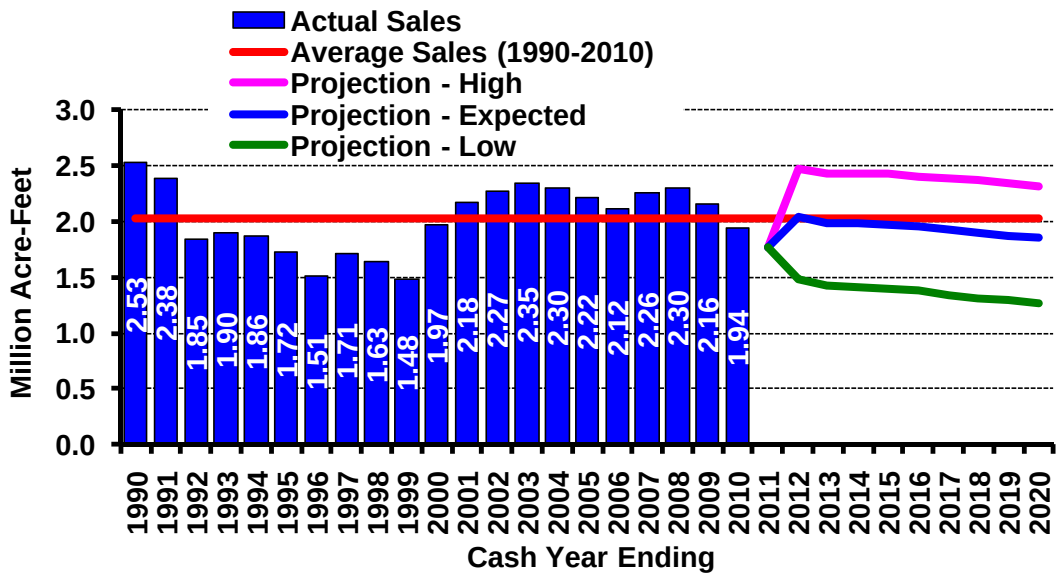
This section summarizes the key aspects of the 2010 Integrated Resources Plan Update (2010 IRP Update) and how they have incorporated into the 2010 LRFP. There are four key resource areas that make up the Core Resources Strategy. These four areas are: 1) improve the reliability of the SWP through mid- and long-term Delta improvements; 2) develop dry year programs that, when combined with storage, transfers, and exchanges developed through the QSA, provide a maximized CRA; 3) encourage retail and regional compliance with 20 percent conservation per capita by 2020 water use efficiency goals; and 4) enhance options to incentivize in local supply augmentation. This section describes how these key resource areas were incorporated into the 2010 LRFP.

Water Sales Forecast

For financial planning purposes, it is expected that demand for Metropolitan supplies will decrease from 2.0 million acre-feet in 2011/12 to 1.9 million acre-feet by 2019/20. This is significantly different from prior long range finance plans, which have forecasted increasing sales levels. The primary reason for this change is that the 2010 IRP Update contemplates continued investment in local resources, primarily water recycling, groundwater recovery and ocean desalination, and retail and regional conservation measures to meet state policy regarding water use efficiency. By 2019/20, conservation and water efficiency initiatives will result in an additional reduction of regional water use beyond that already achieved by Metropolitan's conservation programs by an estimated 580,000 acre-feet. Local resource augmentation will result in approximately 600,000 acre-feet of production from existing and new programs to promote water recycling, groundwater recovery, and desalination. These local supplies and increased conservation and water use efficiency reduce the need for imported water and expected water sales by Metropolitan.

Figure 7 shows historic and forecast water sales. Since 1989/90, Metropolitan sales have averaged 2.0 million acre-feet. As noted above, expected sales are forecast to decrease below this average to 1.9 million acre-feet by 2019/20. Under changed economic, climatic and hydrologic conditions, sales in any of the next ten years could range between 1.3 million acre-feet and 2.4 million acre-feet.

Figure 7: Water Sales, Historic and Forecast



Local Resources

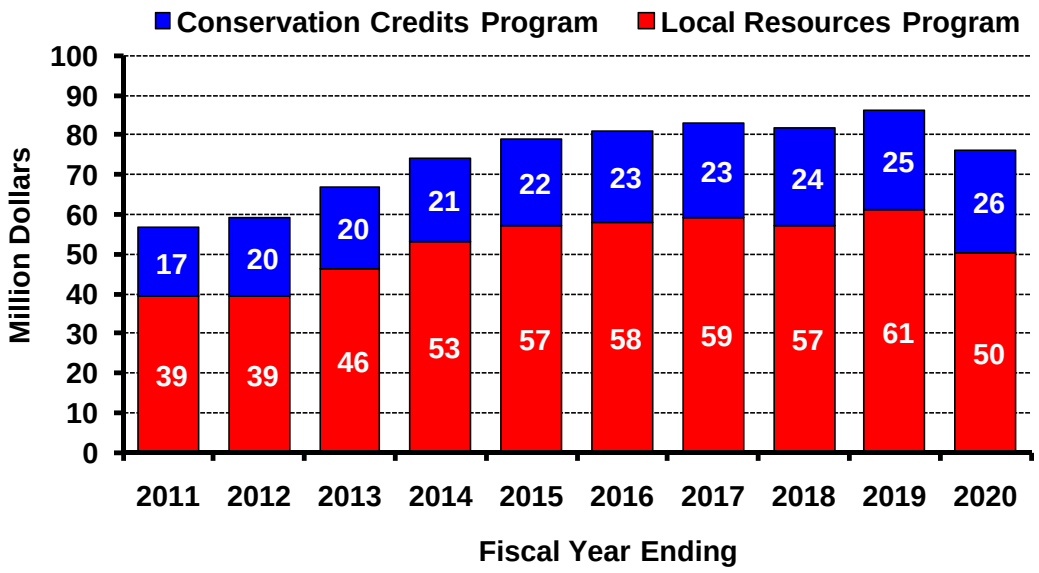
Local resources, including groundwater recovery, water recycling, seawater desalination, and conservation are fundamental aspects of the 2010 IRP Update. Financial incentives by Metropolitan will support local projects that are expected to develop approximately 600,000 acre-feet of new supplies by 2019/20. These investments result in additional water supply, and just as importantly, defer the need for Metropolitan to construct new treatment and distribution capacity and are consistent with State policy to reduce per capita water use.

Metropolitan's cost for funding local resources including conservation, recycling and groundwater recovery currently amounts to $57 million. These payments are funded through the Water Stewardship Rate, which is charged for every acre-foot of water delivered by Metropolitan. By 2019/20 Metropolitan's funding for conservation, recycling, and desalination is expected to increase to $76 million. The increase is attributable to the need to finance the additional yield from existing and committed projects under Metropolitan's Local Resources Program (LRP), as well as the yield from new projects anticipated as part of implementing the 2010 IRP Update. The yield from the 2010 IRP Update is expected to increase to approximately 600,000 acre-feet in 2019/20, made up of existing projects producing 387,000 acre-feet of recycled water, 136,000 acre-feet of groundwater recovery, and 56,000 acre-feet of desalination, augmented by another 16,000 acre-feet of additional local resources.

Figure 8 shows the expected local resources expenditures to fund the requirements of the 2010 IRP Update. The 2010 LRFP includes an annual escalation of 3.5 percent in expenditures for the conservation program. Local Resources Program expenditures increase through 2018/19, reflecting growth in production from contracts. In 2019/20, expenditures begin to drop as contracts become more cost effective when compared to Metropolitan's average effective rate. As a result of these investments, Metropolitan's

Water Stewardship Rate is expected to increase from $41 per acre-foot in calendar year 2010/2011 to $58 per acre-foot in 2019/20.

Figure 8: Demand Management Program Costs



Imported Supplies

Colorado River

Historically, Metropolitan received about 1.25 million acre-feet each year from the Colorado River. But, due to the significant drought in the Colorado River watershed and negotiations regarding the allocation of Colorado River supplies among the California contractors and the other basin states, California's allocation of Colorado River water was limited to 4.4 million acre-feet in 2003. This limitation fell squarely on Metropolitan as the fourth priority use on the river. In October 2003, Metropolitan and the other California contractors (with the exception of the Palo Verde Irrigation District) executed the Quantification Settlement Agreement (QSA). The QSA lays out a framework for transferring water from agricultural uses to urban needs. The QSA identifies specific projects that will result in an increase in diversions through Metropolitan's Colorado River Aqueduct. In addition, the execution of the QSA provides the opportunity for Metropolitan to access "special surplus" supplies under the Interim Surplus Guidelines, if hydrological conditions on the river improve. The transfer between the Imperial Irrigation District and the San Diego County Water Authority (SDCWA) will move water through the Colorado River Aqueduct. Therefore, the Colorado River water deliveries, which are expected to result in a nearly full aqueduct, include these deliveries of Colorado River supplies to SDCWA, although Metropolitan's revenues from these deliveries will be for the cost of transportation only.

State Water Project Supplies, Storage and Transfers

Delivery of water through the State Water Project (SWP) system to Metropolitan is expected to average approximately one million acre-feet per year through 2019/20. Water delivered through the SWP includes deliveries of Metropolitan's "Table A" amounts, carryover supplies, water transfers, and exchanges. Deliveries from the SWP have been impacted by the decline of the Delta ecosystem, which ultimately triggered a wave of litigation and new pumping restrictions that have dramatically altered water management for Metropolitan. Pumping restrictions now exist in the Delta for nine out of twelve months in the year, and result in a loss of supply of approximately 30 percent in an average year. To address these impacts to the SWP operations, as well as a myriad of other issues affecting the Delta, Metropolitan is participating in the development of the Bay-Delta Conservation Plan (BDCP), which is aimed at combining long-term ecosystem and water system improvements. Ecosystem restoration and water conveyance alternatives are being evaluated in the Delta Habitat Conservation and Conveyance Program (DHCCP), a partnership between the California Department of Water Resources (CDWR) and the United States Bureau of Reclamation (USBR). The DHCCP will advance the preferred alternative for water conveyance facilities and habitat restoration. An estimate of DHCCP costs has been included in the 2010 LRFP.

Metropolitan has executed a number of contracts with Central Valley and Sacramento Valley water districts for storage and transfers. These programs include option-based transfers, whereby Metropolitan pays an upfront payment for the right to exercise an option to take water later in the year, if conditions warrant. In addition, Metropolitan has executed long-term storage and transfer programs, where Metropolitan funds infrastructure improvements in exchange for the right to store water in groundwater basins for future use during dry years. SWP costs, including the cost of power to pump the water on the project, are expected to increase from $497 million in 2010/11 to $761 million in 2019/20. This increase is due to higher SWP energy costs, increases in the capital charges and minimum operations, maintenance, power, and replacement (OMP&R) charges, and the estimated cost of the DHCCP program.

Summary of Rate Impacts

Each of the elements – Local Resources, Conservation, Colorado River, and State Water Project and Transfers – contribute to the expected rate increases necessary to meet Metropolitan's and the member agencies' reliability objectives. Investments in local supplies help to ensure reliable deliveries by reducing stress on the import delivery system, both in terms of supply and capacity, while investments in additional water transfers (particularly option-based transfers) provide necessary redundancy at relatively low cost. The basic strategies of diversification and flexibility remain the foundation of the 2010 IRP Update, and are reflected in the costs and rates forecast for the next ten years. Metropolitan's rates are forecast to increase about 5.6 percent on an annualized basis from 2010/11 to 2019/20, while supporting the investments and operating and maintenance costs necessary to meet the region's needs for a reliable, high quality supply of water.

Section 2

Financial Forecast

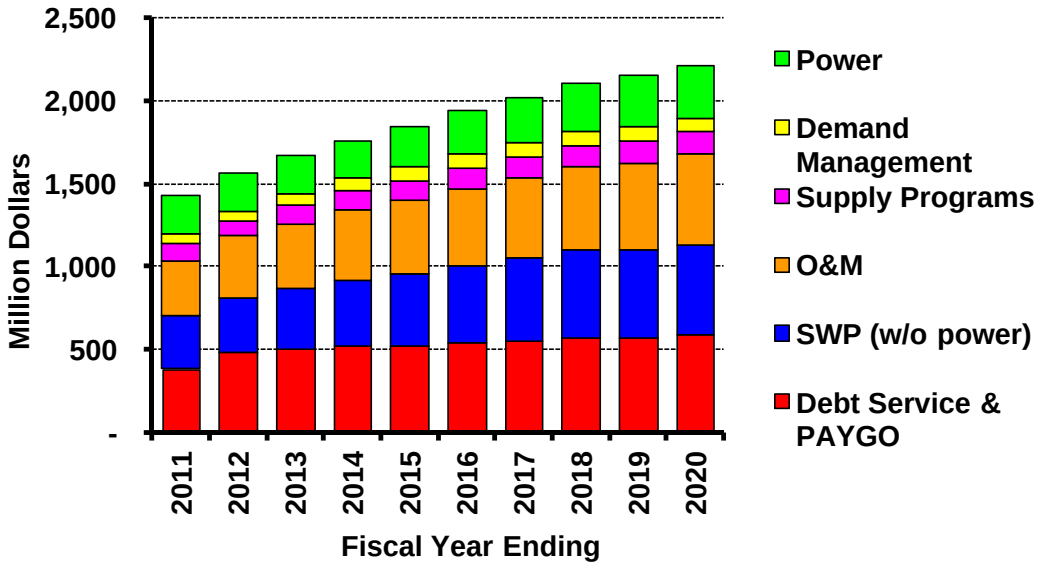
Section 2.
Financial Forecast

Section 2 provides a forecast of Metropolitan's major areas of expenditures and revenues. Expenditures include cost for the SWP, CRA power, operations, demand management programs, debt service, and fund deposits. Revenues include water revenues, ad valorem taxes, interest income, and power sales revenues. The forecast reflects Metropolitan's best estimates at this time and should not be viewed as a precise prediction, but rather as an indication of expected trends. The forecast is based on current board policies, the current rate structure, and assumptions about future conditions.

Expenditures

Expenditures include the State Water Project (SWP), supply programs to augment available Colorado River and State Water Project supplies, power costs on the CRA, capital financing costs (debt service, bond defeasance and R&R Fund), demand management costs and operations and maintenance costs. Annual expenditures, excluding funding of the CIP, are expected to increase from $1.4 billion in 2010/11 to $2.2 billion by 2019/20, or an annual average rate increase of 5 percent. Figure 9 illustrates the overall trend in these expenditure categories.

Figure 9: Expenditures

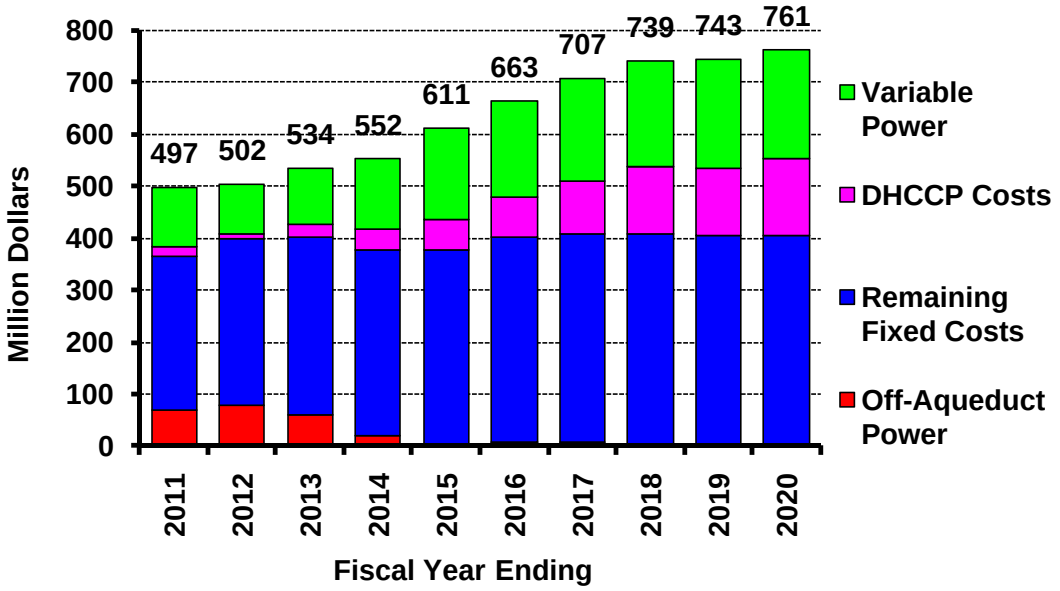


State Water Project

Metropolitan is one of 29 agencies that contract with the State of California for service from the State Water Project. Metropolitan is obligated to pay its share of the capital and minimum operations, maintenance, power, and replacement (OMP&R) charges of the project regardless of the amount of water actually received. In addition, Metropolitan

pays the power costs to convey the water. The 2010 LRFP assumes that SWC costs, including power, will increase from their current level of $497 million to $761 million in 2019/20, as shown in Figure 10. Currently, SWC costs account for 35 percent of Metropolitan's 2010/11 expenditures.

Figure 10: SWP Costs



Capital, OMP&R, and Off Aqueduct Power Facilities (OAPF) charges are based on information from DWR. Metropolitan prepares a forecast of variable power costs based on the estimated resources needed to convey water through the project. SWP variable power costs are projected to increase about 180 percent over the 10-year forecasting period. The SWP owns substantial generating resources, including the Hyatt complex, recovery generation units on the Aqueduct, and a contract for power from the Kings River Conservation District's Pine Flat generating facility. The SWP is a participant in the Lodi Energy Center, a natural gas-fired combined cycle generating facility located in Lodi, California, and operated by the Northern California Power Agency. The SWP will also be acquiring renewable resources. No projects are currently identified, however potential projects include solar and small hydroelectric generating facilities, and cost estimates for this resource are in the forecast. Additional resources necessary to meet the balance of the project's energy requirements will be obtained from the wholesale energy market. The resourcing of the SWP as included in the 2010 LRFP is consistent with DWR's current long-term energy planning.

The SWP energy requirements to move water to Metropolitan on the East Branch through Devil Canyon are 3,236 kWh per acre-foot (4549 kWh pumping less 1,313 kWh recovery); on the West Branch through Castaic, the energy requirements are 2,580kWh/AF (4,126 kWh pumping less 1,546 kWh recovery). Because Metropolitan moves the largest amount of water on the SWP (Metropolitan's contracted share of water

is 46 percent of the SWP supply) and Metropolitan's delivery points on the East and West Branch are at or near the southern extreme of the SWP, Metropolitan pays between 70 to 75% of the SWP power costs.

Consistent with AB 32, recent state legislation to reduce greenhouse gas emissions in California, CDWR provided notice to Nevada Energy, formerly Nevada Power Company, that CDWR will not extend the contract for its participation in the Reid Gardner Unit 4 coal generating facility beyond the current contract term ending July 2013. The costs of Reid Gardner are recovered through the OAFP charges. These charges will gradually decline through the ten-year period of the 2010 LRFP as trailing debt service associated with Reid Gardner and two defunct geothermal projects eventually are paid off. The SWP benefits from having a large base of zero-emission hydroelectric resources, and with the termination of the Reid Gardner contract, should meet AB 32's requirement for emissions to decrease to 1990 levels by 2020.

Deliveries from the SWP have been impacted by the decline of the Delta ecosystem, which ultimately triggered a wave of litigation and new pumping restrictions that have dramatically altered water management for Metropolitan. Pumping restrictions now exist in the Delta for nine out of twelve months in the year.

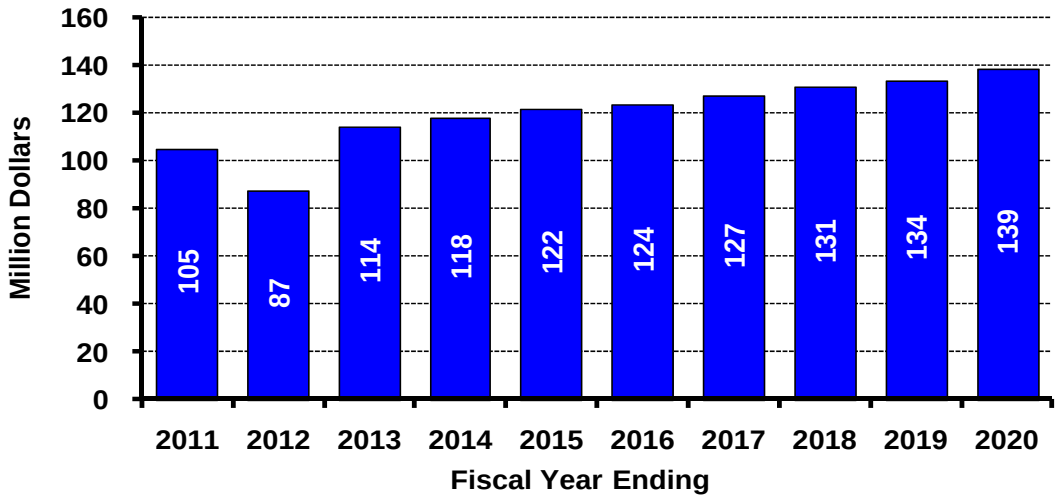
To address these impacts to the SWP operations, as well as other issues affecting the Delta, Metropolitan is participating in the development of the Bay-Delta Conservation Plan (BDCP), which is aimed at combining long-term ecosystem and water system improvements. Ecosystem restoration and water conveyance alternatives are being evaluated in the Delta Habitat Conservation and Conveyance Program (DHCCP), a partnership between the CDWR and the USBR. The DHCCP will advance the preferred alternative for water conveyance facilities and habitat restoration.

An estimate of Metropolitan's share of the DHCCP costs has been included in the 2010 LRFP. The 2010 LRFP assumes that the cost of the DHCCP is shared equally between CDWR and the USBR, and that Metropolitan's share is approximately half of the CDWR component. The forecast assumes that debt is issued as needed to fund capital projects and that debt service costs increase over time. Metropolitan's share of the costs to address the Bay-Delta is expected to increase to about $150 million by 2019/20. Water supply benefits are assumed to be realized outside the ten-year period of the 2010 LRFP, as are operations, maintenance and energy costs.

Supply Programs

The forecast included in the 2010 LRFP includes programs identified in the 2010 IRP Update. Annual expenditures for supply programs are projected to range from $87 million in 2011/12 to $139 million in 2019/20. The following describes the major programs whose costs are included in this expenditure forecast.

Figure 11: Supply Program Costs



Metropolitan/Imperial Irrigation District Conservation Program

Under a 1988 water conservation agreement, Metropolitan has funded water efficiency improvements within the Imperial Irrigation District's service area in return for the right to divert the water conserved by those investments. Metropolitan initially obtained an additional 105,000 acre-feet per year under this program. Execution of the QSA and amendments to the 1988 and 1989 agreements resulted in changes in the availability of water under the program, guaranteeing Metropolitan at least 85,000 acre-feet per year, with the remainder of the conserved water available to the Coachella Valley Water District.

Palo Verde Land Management Program

In May 2004, Metropolitan's Board authorized a 35-year land management, crop rotation, and water supply program with the Palo Verde Irrigation District ("PVID"). Under the program, participating farmers in PVID are paid to reduce their water use by not irrigating a portion of their land. A maximum of 29 percent of lands within PVID can be fallowed in any given year. Under the terms of the QSA, water savings within the PVID service area are made available to Metropolitan. This program provides up to 133,000 acre-feet of water to be available to Metropolitan in certain years, and a minimum of 33,000 acre-feet per year.

Other Colorado River Supply Programs

Also included in the Colorado River supply programs are programs providing smaller water quantities or dry-year supplies. In March 2007, Metropolitan, the City of Needles, and the USBR executed a Lower Colorado Water Supply Project (LCWSP) contract. Under the contract, Metropolitan receives, on an annual basis, LCWSP water unused by

Needles and other entities with no rights or insufficient rights to use of Colorado River water in California, the beneficiaries of the Project.

Metropolitan and the Bureau of Reclamation executed an agreement to allow Metropolitan and other California contractors to store up to 1.5 million acre-feet in Lake Mead. Under this agreement, intentionally-created surplus water, which is water that has been conserved through an extraordinary conservation measure, is eligible for storage in Lake Mead.

Arvin-Edison/Metropolitan Water Management program

Metropolitan entered into an agreement with the Arvin-Edison Water Storage District ("Arvin-Edison"), amended in January 2008, to store water on behalf of Metropolitan. Up to 350,000 acre-feet of metropolitan's water may be stored and Arvin-Edison is obligated to return up to 75,000 acre-feet of stored water in any year to Metropolitan, upon request. To facilitate the program, new wells, spreading basins and a return conveyance facility connecting Arvin-Edison's existing facilities to the California Aqueduct have been constructed. The agreement also provides Metropolitan priority use of Arvin-Edison's facilities to convey water available on the eastside of the San Joaquin Valley to the California Aqueduct. This agreement terminates in 2035 unless extended.

Semitropic Groundwater Storage and Exchange program

In 1994 Metropolitan entered into an agreement with the Semitropic Water Storage District ("Semitropic"), located adjacent to the California Aqueduct north of Bakersfield, to store water in the groundwater basin underlying land within Semitropic. The minimum annual yield available to Metropolitan from the program is 31,500 acre-feet of water and the maximum annual yield is 223,000 acre-feet of water depending on the available unused capacity and the State Water Project allocation.

California Aqueduct Dry-Year Transfer Programs

Metropolitan has entered into agreements with the Kern Delta Water District ("Kern Delta"), the Mojave Water Agency ("Mojave"), and the San Bernardino Valley Municipal Water District ("SBVMWD") to insure against regulatory and operational uncertainties in the State Water Project system that could impact the reliability of existing supplies. The total potential yield for the three agreements is approximately 80,000 acre-feet of water per year when sufficient water is available. The SBVMWD agreement allows Metropolitan to purchase a minimum of 20,000 acre-feet on an annual basis with the option to purchase additional water when available. This program terminates December 31, 2014. Metropolitan entered into an agreement with Kern Delta for a groundwater banking and exchange transfer program to allow Metropolitan to store up to 250,000 acre-feet of State Water Contract water in wet years, and permit Metropolitan, at Metropolitan's option, a return of up to 50,000 acre-feet of water annually during hydrologic and regulatory droughts. Finally, Metropolitan entered into a groundwater banking and exchange transfer agreement with Mojave. The agreement allows for Metropolitan to store water in an exchange account for later return.

Power Costs

Power costs associated with the SWP were previously discussed. With regard to the CRA, Metropolitan's CRA power costs are projected to increase about 80 percent over the 10-year forecast period.

Metropolitan has five basic sources of power available to meet energy requirements on the CRA: Hoover Power, Parker Power, Benefit Energy from SCE, Exchange Power with SCE, and wholesale purchases from entities in the Western US.

Metropolitan has a Service and Interchange Agreement (Agreement) with SCE that provides services and benefits to both parties. The Agreement expires in 2017. Under the Agreement, SCE can dispatch Metropolitan's Hoover Dam and Parker Dam power entitlements and utilize excess transmission capacity on Metropolitan's CRA transmission system. SCE in return must meet Metropolitan's CRA energy and reliability requirements on a continuous basis. SCE must also provide Benefit Energy, the amount of which is determined annually, at no cost to Metropolitan for the benefits SCE receives.

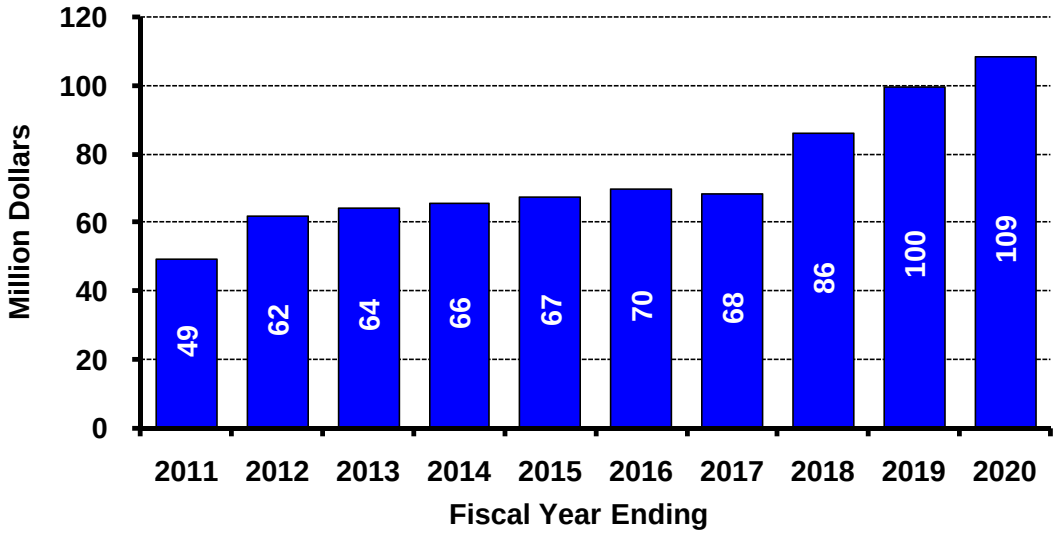
Under a contract between the United States, Department of Energy, Western Area Power Administration, Boulder Canyon Project and Metropolitan, Metropolitan has a right to approximately 247 MW of capacity at the Hoover Power Plant, which is about 12 percent of the total generating capacity. Metropolitan has an annual firm energy entitlement of 1,291 MWh (904 MWh in summer and 387 MWh in winter), which is about 28 percent of the total Boulder Canyon Project (Hoover) firm energy allocations. This contract expires in 2017, concurrent with the SCE Agreement. Hoover Power Plant generation is cost-based. Because of the benefits a low-cost, federally funded hydroelectric plant provides, Metropolitan is prohibited from selling Hoover Power for a profit. Under the Agreement with SCE, SCE can dispatch Hoover Power as they desire, so Metropolitan deems Hoover energy to have been delivered in the on-peak period.

Under a contract among the United States, Department of the Interior, Bureau of Reclamation and Metropolitan, Metropolitan funded the total cost of construction of Parker Dam and incidental facilities, and 50 percent of the construction cost of the Parker Power Plant. By providing the funding contribution, Metropolitan is entitled in perpetuity to 50 percent of the capacity and energy of the four Parker generating units, which is approximately 54 MW of capacity. Parker Power is also cost-based, but there is no limitation on resale of the energy. Parker Power is scheduled hourly. Metropolitan schedules the maximum available in the on-peak period and decreases the schedule to the minimum during the off-peak period.

In consideration of the benefits SCE receives under the Scheduling and Interchange Agreement, SCE provides energy to Metropolitan called Benefit Energy. There is no charge for this energy. The amount of Benefit Energy available annually depends on the usage of the CRA by Metropolitan. Because SCE is obligated to meet the energy and reliability requirements of the CRA, they benefit if the CRA is not operating at full capacity. The relationship between the amount of Benefit Energy provided and pumping

load is inverse: the more Metropolitan pumps, the less Benefit Energy SCE provides. Therefore, under the high diversion scenario, Metropolitan receives slightly less Benefit Energy to meet pumping loads than would be realized under a lower diversion scenario. The minimum amount of Benefit Energy provided annually by SCE is 200,000 MWh. The contract sets maximum and minimum amounts of Benefit Energy that can be allocated monthly. Benefit Energy can only be used to meet off-peak energy requirements.

Figure 12: CRA Power Costs



After implementation of the QSA, Metropolitan's resources and loads are not always aligned throughout the year. Metropolitan has an agreement with SCE to provide, at Metropolitan's option, the exchange of power, which is used to help align power availability with needs. The agreement covers a 12-month period, with no provision to carryover balances from one contract year to the next. The SCE agreement provides for the exchange year to run from October through the following September, which matches the federal government's fiscal year. The power is valued when delivered and returned. SCE must receive at least the same monetary value from the energy returned as provided, or Metropolitan must pay the difference. If Metropolitan returns energy with a greater monetary value than that provided, there is no payment to Metropolitan.

Finally, Metropolitan can purchase power to meet any supplemental power needs from entities through the western United States and Canada. Metropolitan executes these purchases either through bilateral contracts or the Western Systems Power Pool (WSPP) agreement. Generally, these purchases are off-peak, and can be transacted in the real-time, day-ahead, or forward markets.

Metropolitan's basic resource mix, which can meet delivery requirements for approximately 780,000 to 800,000 acre-feet, is very cost effective. Once those resources are exhausted, Metropolitan acquires any balance from the wholesale market. In the

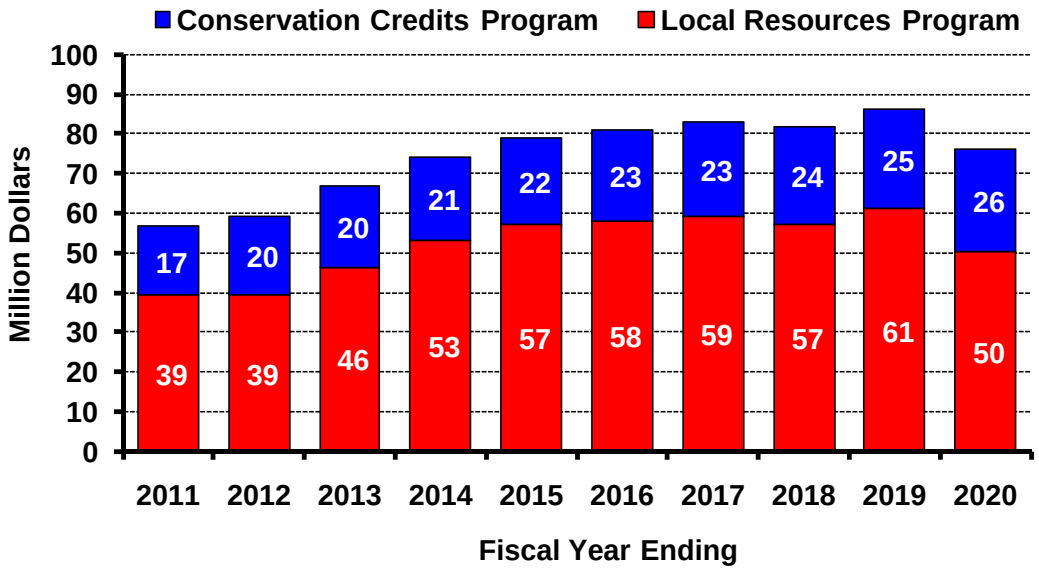
event that CRA resources are less than 780,000 acre-feet, Metropolitan sells excess energy into the wholesale market and realizes revenues, which offset the total cost of energy as reflected in the System Power Rate. Metropolitan operates its pumps at a constant load, so the round-the-clock average price of power in Southern California would reflect the energy cost to move the water. While the pumps physically require about 2 MWh to move an acre-foot of water through the CRA, there is an additional financial impact. As explained previously, the amount of Benefit Energy Metropolitan receives from SCE is inversely proportional to Metropolitan's use of the CRA. The less water Metropolitan pumps, the more Benefit Energy received from SCE. The impact of moving an additional acre-foot of water reduces the amount of Benefit Energy received from SCE and is estimated at .317 MWh. So, the financial impact of moving an additional acre-foot of water is 2.317 MWh.

In the long term, key contracts will expire in 2017, including Hoover and the SCE Service and Interchange Agreement. The 2010 LRP assumes the termination of the SCE Service and Interchange Agreement and the loss of about 5 percent of the Hoover entitlement. Metropolitan will likely experience increased exposure to both on- and off-peak wholesale energy prices, which will be impacted by greenhouse gas emissions regulations.

Demand Management Program Costs

To diversify the region's water supply and reduce the demand for imported water, Metropolitan provides financial incentives to its member agencies to support conservation, water recycling, groundwater recovery, and desalination projects. Metropolitan funds local projects and programs through its Local Resources Program (LRP) and Conservation Credits Program (CCP). These demand management programs are alternatives to developing imported supply and regional infrastructure. The extent to which Metropolitan invests in local resources is determined by the 2010 IRP Update.

Figure 13: Demand Management Program Costs



A significant amount of existing local supply is already partially funded by Metropolitan. Currently, Metropolitan is participating in 63 water-recycling projects. Fifty-eight of these projects are in operation and the remaining five projects are under design or construction. Metropolitan also provides financial assistance to 23 projects that recover contaminated groundwater. The yield from the 2010 IRP Update is expected to increase to approximately 600,000 acre-feet in 2019/20, made up of existing projects producing 387,000 acre-feet of recycled water, 136,000 acre-feet of groundwater recovery, and 56,000 acre-feet of desalination, augmented by another 16,000 acre-feet of additional local resources. LRP costs are projected to increase from $39 million to as much as $61 million over the 10-year forecast period.

The 2010 LRFP includes an annual escalation of 3.5 percent in expenditures for the conservation program. The CCP provides financial incentives to support local agencies implementing conservation measures. The 2010 LRFP assumes that Metropolitan will continue to fund the CCP at $17 million in 2010/11, escalating to $26 million in 2019/20. Local Resources Program expenditures increase through 2018/19, reflecting growth in production from contracts. In 2019/20, expenditures begin to drop as contracts become more cost effective when compared to Metropolitan's average effective rate. As a result of these investments, Metropolitan’s Water Stewardship Rate is expected to increase from $41 per acre-foot in calendar year 2011 to $58 per acre-foot in 2020.

Capital Investment Plan

The projects that comprise the proposed Capital Investment Plan (CIP) have been identified from many Metropolitan studies of projected water needs that are embodied in Board approved documents such as the Integrated Water Resources Plan, Distribution System Overview Study, the Integrated Area Studies, and the General Manager’s

Business Plan. In addition, staff and consultants have studied operational demands on aging facilities as well as new regulations and made recommendations for capital projects that will maintain infrastructure reliability and water quality standards; and studied business and operational processes and made recommendations for programs that will improve efficiency and provide future cost savings.

In fiscal year 2000/01, the CIP was restructured to better reflect Metropolitan's strategic goals of providing a reliable supply of high quality water at the lowest cost possible. As part of the restructuring process, all new and existing projects are evaluated against an objective set of criteria to ensure existing and future capital investments are aligned with Metropolitan's goals of Reliability and Water Quality. A team comprised of staff from Water System Operations, Water Resources Management, Corporate Resources and Office of Chief Financial Officer evaluates and rates all projects. Those projects that directly support the goals of Reliability and Water Quality are assigned top priority for inclusion in Metropolitan's proposed CIP.

This rigorous evaluation process has resulted in a thorough review and assessment of all proposed capital projects by staff and managers prior to submittal to the evaluation team. Staff continues to conduct comprehensive field investigations that have identified a growing number of critical replacement and refurbishment projects and a variety of necessary facility upgrades related to infrastructure reliability as well as regulatory compliance. Project schedules are evaluated regularly in order to plan for steadily increasing capital investments in infrastructure reliability and to accommodate the urgency of each project.

For the project evaluation, staff is required to submit proposals for all projects that include scope, justification, alternatives, impact of scheduling work for a later time, and estimate of cost. For existing projects, staff must also provide justification for continuing the project, explain any changes since inception of the project, and describe critical phases for the budget year. Before a project is included in the CIP, it is evaluated and rated against an established set of criteria covering four key characteristics or objectives for capital projects: Project Necessity, Disruption of Service, Program Dependency, and Cost Efficiency/Productivity. In addition, a multiplier is applied to a project rating to factor in a risk assessment.

Project Drivers

A driver is the primary reason a project is being implemented and is identified within the context of Metropolitan's goals of providing a reliable supply of high quality water. The projects in the CIP have been assigned to the following categories: Supply and Delivery Reliability, Infrastructure Reliability, Water Quality, Information Technology, and Stewardship. Table 2 below provides a definition of the drivers.

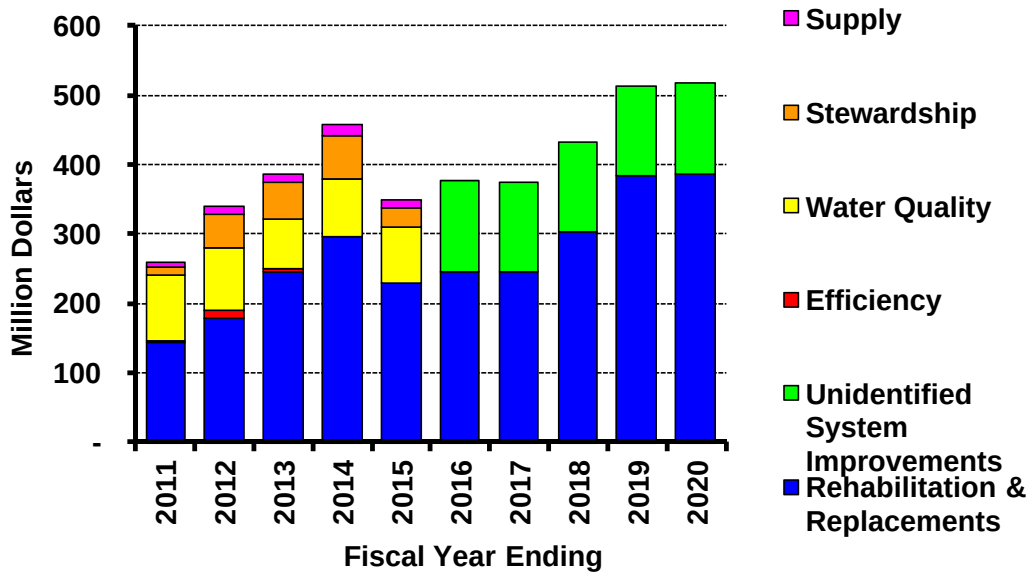
Table 2: CIP Drivers

Driver	Definition
Supply & Delivery Reliability	Implementing the project will improve the capacity of the Metropolitan's water supply and delivery infrastructure to meet projected demand increases.
Infrastructure Reliability	
➢ Replacement & Refurbishment	Implementing the project will replace or refurbish existing facilities and components in order to continue to reliably meet current service demands.
➢ Facility Upgrades	Implementing the project will improve or modify Metropolitan's treatment, conveyance, storage, or distribution facilities to effectively respond to changing operational conditions or requirements, and utilize new processes and/or technologies.
Water Quality	Implementing the project will ensure Metropolitan meets all applicable water quality regulations.
Information Technology	Implementing the project will provide economic savings that outweigh project costs through enhanced business and operating processes, and/or replace outdated computer hardware and software applications.

Major and Ongoing Capital Programs

Figure 14 depicts a combination of actual and projected capital expenditures over a 10-year window, from fiscal year 2010/11 through 2019/20. The evaluation and assessment process described earlier, which occurs on an annual basis, has resulted in projected expenditures of $260 million for fiscal year 2010/11. Major expenditures over the next ten years include the Oxidation Retrofit program and facility upgrade and replacement or refurbishment projects. Over half of the remaining budgeted expenditures beyond 2011/12 are projected Replacements and Refurbishments. A more detailed discussion about future R&R follows in the next section. Beyond 2014/2015, the timing and magnitude of CIP projects is uncertain. Metropolitan has looked at a number of future projects identified internally and through collaborative efforts. While there is much uncertainty about which specific projects will be funded beyond 2014/15, it was assumed that $130 million per year of new system improvements would be funded. This figure is within the range of expenditures forecasted for 2010/11 through 2014/15 ranging from a high of $162 million to a low of $117 million. An estimate of potential future CIP projects has been shown below.

Figure 14: Capital Improvement Program



The total estimated capital expenditures for fiscal years 2010/11 through 2019/20 are forecasted to be about $4.0 billion.

Replacements and Refurbishments

The Replacements and refurbishments (R&R) projects over the ten-year forecast are about $2.7 billion, or around 66 percent of the total CIP. The Asset Replacement Planning Model was created by the consulting firm Brown & Caldwell in 2002 to provide Metropolitan with an improved awareness of the timing and magnitude of the future needs for refurbishments and replacements. The model calculates year-by-year refurbishment and replacement needs for each fixed asset of Metropolitan over a 30-year horizon, as well as an estimate of replacement costs of the fixed assets.

The model contains a database of fixed assets, work in progress, and the CIP. Non-replaceable assets were excluded from the study. Assets removed include land, asset relocations and retirements, capitalized interest charges, and non-repeating studies or programs. Assets are classified under approximately 30 replacement classes. The classifications are based on asset descriptions in Oracle. The original asset classification by Brown & Caldwell involved examining each asset in Oracle and discussing with Metropolitan engineers the specific nature of the asset. Refurbishment intervals and associated costs are based on input received from Metropolitan staff. For example, water treatment plants have a 100 year useful life. They require replacement of filter media annually at a cost equal to 0.1% of the asset's replacement cost, and then every five years refurbishment of instrumentation and control systems at a cost equal to 0.5% of replacement cost, every ten years refurbishment of chemical feed systems at a cost equal to 3% of replacement cost, and so on. Table 3 below displays the model's refurbishment schedules for some of Metropolitan's larger asset classes.

Table 3: Asset Replacement Planning Model R&R Schedules

Class Name	Refurb type 1 Refurb type	Interval, years	Cost, % of repl	Refurb type 2 Refurb type	Interval, years	Cost, % of repl	Refurb type 3 Refurb type	Interval, years	Cost, % of repl	Refurb type 4 Refurb type	Interval, years	Cost, % of repl
Pipeline - Major	replace misc. valves, appurtenances	15	1	replace pipe segments, pipe refurbishments	2	0.03						
Water Treatment	chemical feed system refurbishments	10	3	electrical system refurbishment	15	5	filter media replacement	1	0.1	instrumentation / control system refurbishment	5	0.5
Pumping Facility	electrical system refurbishments	25	15	replace misc. mechanical piping, valves, appurtenances	15	10	replace motors	40	15	replace pump impellers	40	15
Tunnel	misc. lining, refurbishment	50	15									

Replacements are based on asset useful lives from published sources (e.g. the CPUC), the general expertise of Brown & Caldwell, input received from Metropolitan staff, other municipalities, and benchmarking surveys. These useful lives are different than the accounting lives used for depreciation calculations, and reflect the number of years before an asset has to be replaced.

Refurbishments are defined as rehabilitating, renewing or restoring a capital asset. It is work undertaken at long intervals, and would be considered a capital expense. It specifically excludes routine and corrective maintenance.

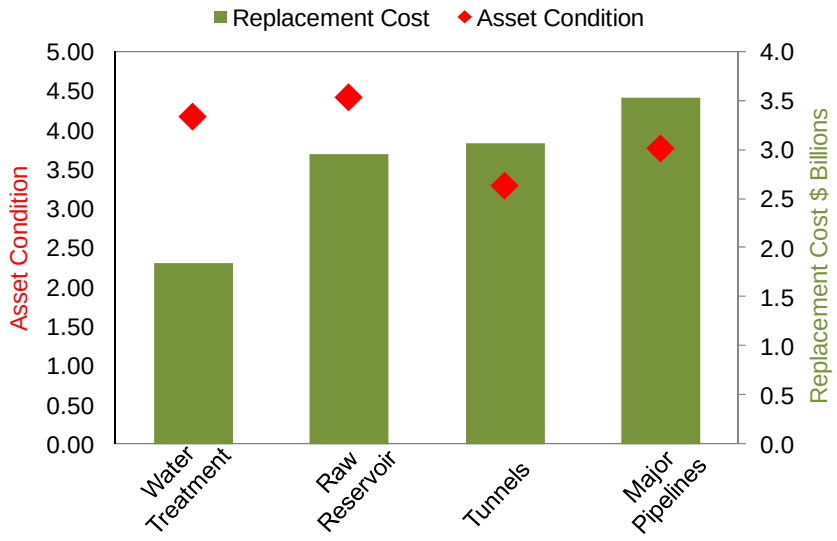
Asset replacement cost is calculated based on the Construction Cost Index from ENR for Southern California. The replacement cost for all of Metropolitan's fixed assets is about $17.1 billion. This figure excludes land assets. Future construction costs are escalated at 3 percent. Recognizing the flexibility in planning the annual R&R schedules, the model calculates R&R needs as 5-year moving averages in order to avoid annual cost spikes.

Over the next ten years, the model R&R expenditures are expected to rise from roughly $160 million in 2010 to over $260 million by 2020. Stated in constant dollars, that would be almost $200 million by 2020. Current R&R needs are almost one percent of the replacement cost of Metropolitan's assets. Based on the experience of Brown & Caldwell, annual R&R expenditures in the one- to two-percent of replacement-cost-new are well within normal ranges. R&R needs are projected to peak by 2030, reaching up to $400 million per year. This substantial increase in R&R is a result of the life-cycle of the assets. New R&R needs also arise due to the significant plant additions in the last ten years, where the replacement cost of the assets added is almost $3.3 billion, including almost $2.2 billion for DVL, and almost $570 million for the water treatment improvements such as the ozone retrofit program.

Asset condition is a metric calculated by the model that can potentially identify asset classes with relatively higher R&R needs. The asset condition is the ratio of the

remaining life divided by the asset's total useful life. The asset condition index is standardized between 0 and 5, with higher values denoting newer assets. The overall condition for all Metropolitan assets is around 3.5. Figure 15 shows the replacement cost and class average asset condition for Metropolitan's largest asset classes.

Figure 15: Replacement Cost and Asset Condition

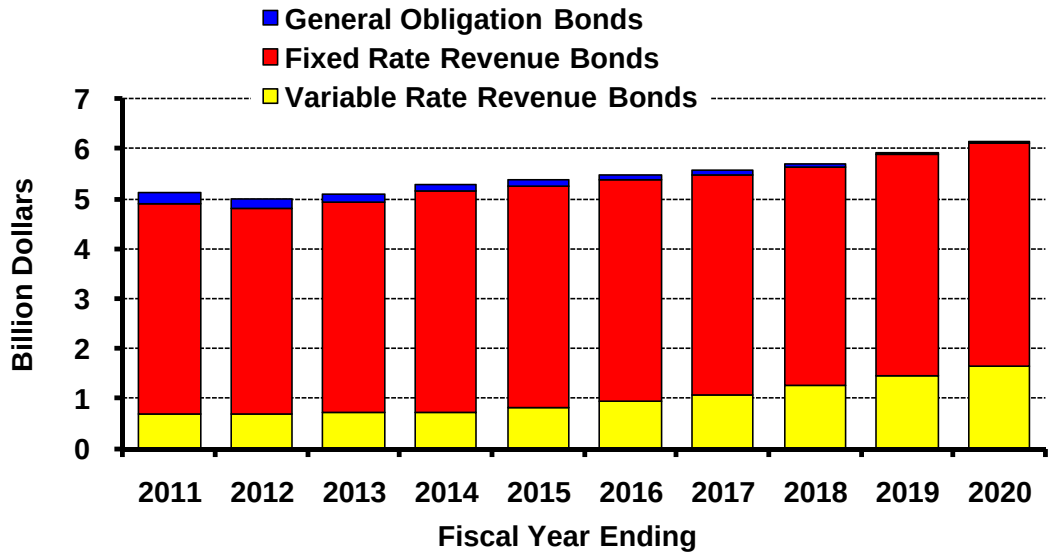


Metropolitan updates the Asset Replacement Planning Model annually. The model's projected R&R is useful especially in the outer years, because specific R&R projects over a longer horizon are not typically identified by the engineers. An R&R projection has been included in the CIP shown in figure 14.

Capital Financing Program

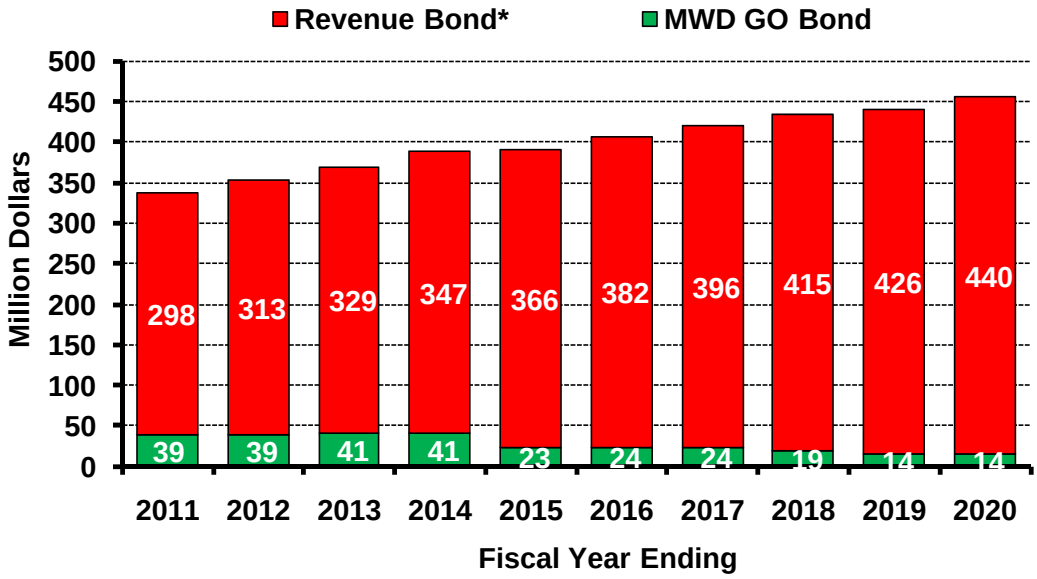
Metropolitan uses a combination of debt and current operating revenues (R&R Fund) to fund the CIP. As of June 30, 2010 Metropolitan's outstanding debt totaled $4.6 billion. By 2019/20, outstanding debt will be about $6.2 billion as illustrated in Figure 16. Fixed rate water revenue bonds will account for the majority of this total at $4.5 billion and variable revenue bonds will account for $1.6 billion. The LRFP assumes that no additional general obligation (G.O.) bonds will be issued. Currently, outstanding G.O. bonds will continue to mature over this period, decreasing G.O. bond debt to $42 million of the total debt outstanding.

Figure 16: Outstanding Debt



Revenue Bond debt service costs are projected to increase from $298 million in 2010/11 to $440 million by 2019/20 as Metropolitan funds about $2.8 billion of the CIP from bond proceeds. Because variable interest rates tend to be lower than fixed rates, a mix of fixed rate debt and variable rate debt will be issued to help manage debt service costs. Long-term interest rate assumptions used in the 2010 LRFP forecast are 5.0 percent for fixed rate debt and 2.3 percent for variable rate debt. Figure 17 illustrates the expected trend in revenue bond debt service costs.

Figure 17: Debt Service Costs

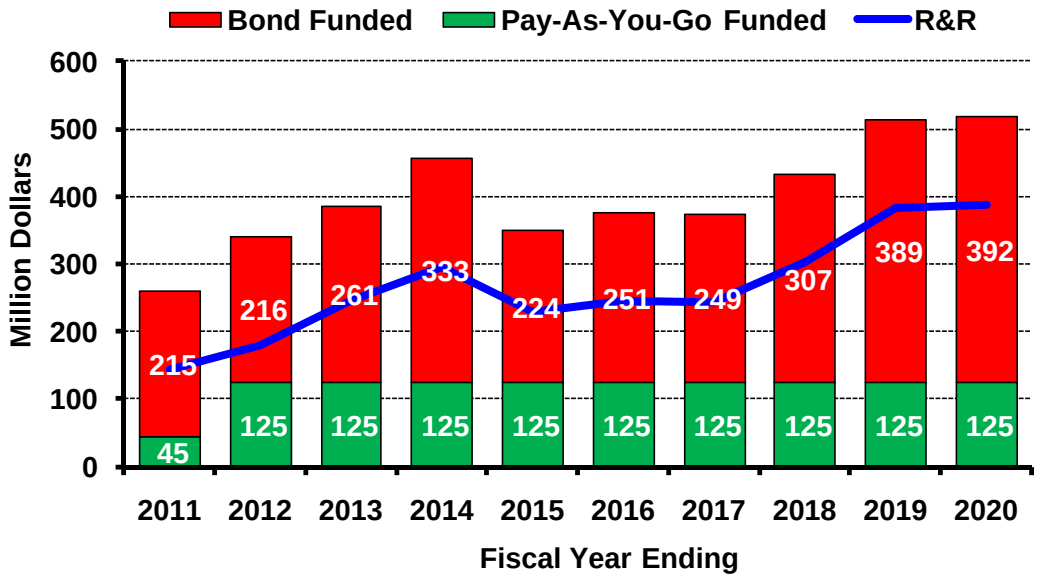


In order to mitigate increases in water rates, provide financial flexibility, and maintain revenue bond and fixed coverage ratios, $125 million per year of R&R projects will be paid from current revenues. This level of R&R funding is consistent with the Board policy adopted in June 2002 that R&R expenditures would be funded from revenues. The R&R expenditures are capped at $125 million, with the balance funded from debt proceeds.

Revenue bond coverage is one primary indicator in determining a municipal entity's ability to fund its annual debt service costs. It measures the degree to which revenues, after paying recurring operating expenditures, are available to fund revenue bond debt service. Using cash from revenues to fund R&R helps to meet Metropolitan's revenue bond coverage target of 2.0 times and the fixed coverage target of 1.2 times, as fixed coverage accounts for the fixed capital costs of the SWP. If Metropolitan were to fund the CIP, including R&R, solely with bond proceeds, future rates would be higher, coverages, would be lower, and flexibility would be reduced as the balance sheet was leveraged. Cash funding R&R at higher levels also provides a relief mechanism to ratchet down required expenditures during periods when revenues are uncertain or challenged, as was experienced in the last three Metropolitan budget processes.

Over the ten-year period of the 2010 LRFP, it is estimated that about 30 percent of total capital expenditures will be funded from the R&R Fund, even though R&R expenditures are about 70 percent of the CIP. Figure 18 illustrates the mix of debt and R&R funding for the CIP and the expected R&R expenditures over the 2010 LRFP forecast period.

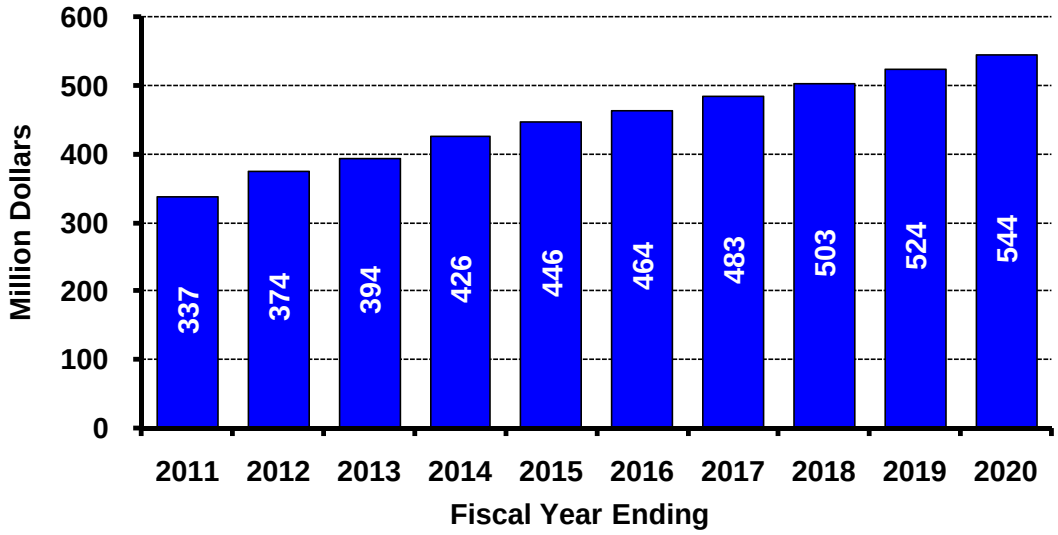
Figure 18: Debt and R&R Funding of the CIP



Operations and Maintenance Costs

Operations and Maintenance costs (O&M) include labor, professional services, non-professional services, materials and supplies and other O&M costs for each of the groups that make up Metropolitan's organizational structure. O&M costs are projected to increase from $337 million in 2010/11 to $544 million in 2019/20, an annualized increase of about 5.5 percent. During this timeframe, inflation is assumed to be 3.5 percent. Base salaries are projected to increase at 90 percent of inflation, which is consistent with expired labor Memorandums of Understanding. Items that are driving overall O&M costs up more rapidly than the rate of inflation include rising benefits costs for pensions and medical costs for active and retired employees. In addition, the 2010 LRFP assumes Metropolitan begins setting aside funds to meet future retiree medical costs (Other than pension Post Employment Benefits, or OPEB) much like promised retirement benefits, rather than continuing to pay for retiree medical costs on a pay-as-you-go basis. The 2010 LRFP incorporates $10 million to begin funding OPEB in 2011/12, followed by $15 million in 2012/13 and $20 million in 2013/14 and each year thereafter, fully funding the annual required contribution.

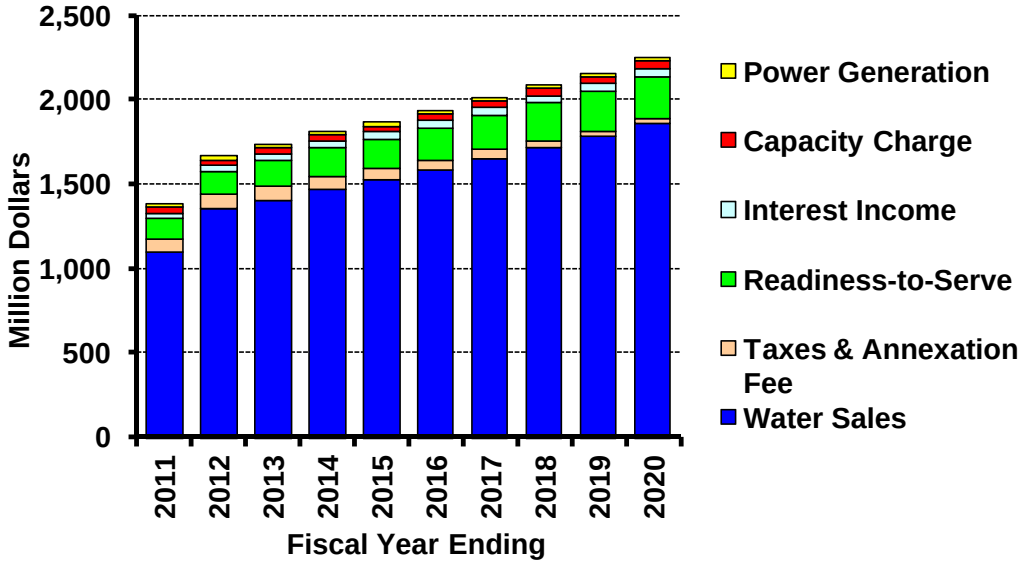
Figure 19: O&M Expenditures



Revenues

Metropolitan relies on revenue from rates and charges, property taxes, hydroelectric power, and other miscellaneous sources to fund its expenditures, CIP and other obligations. Through 2019/20, receipts from rates and charges, which include the RTS, Capacity Charge and water sales revenues, collected from the member agencies will account for approximately 90 to 95 percent of total revenues. Total revenues are projected to increase from about $1.4 billion in 2010/11 to $2.3 billion in 2019/20. This increase is almost entirely attributed to an increase in water rates and charges. Figure 20 illustrates the general trends in revenues.

Figure 20: Revenues



Other Revenues

Property Taxes

Metropolitan collects ad valorem property taxes to pay its general obligation bond debt service and a portion of the debt service associated with the State Water Project. Metropolitan currently levies a property tax of 0.0034 percent of assessed valuation to recover debt service costs on outstanding general obligation bonds and to pay a portion of its financial commitment to the State Water Project. Property tax revenues are expected to decline from $80 million in 2010/11 to $25 million in 2019/20 as general obligation bonds are retired. The 2010 LRFP does not include funding from additional G.O. bonds. Since Metropolitan has no additional G.O. bond authorization, an approval by the electorate in Metropolitan's service area would be required to increase G.O. bond authorization. The property tax rate is expected to decline as Metropolitan's outstanding G.O bonds mature and assessed valuations continue to increase.

Interest Income

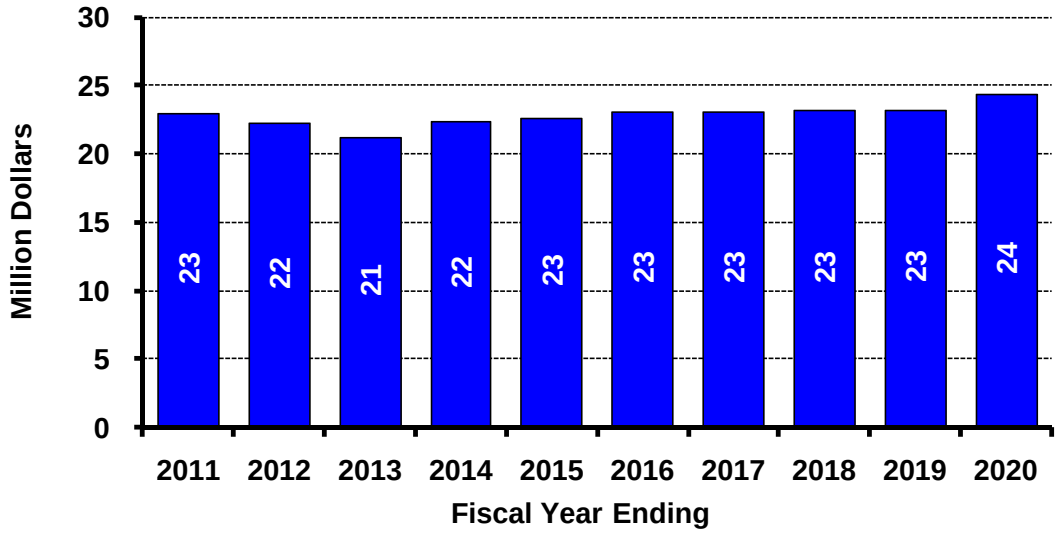
Metropolitan earns interest on invested fund balances and uses this income to reduce the costs that must be recovered by rates and charges. For fiscal year 2010/11 interest income is forecasted at $31 million, increasing to $47 million by 2019/20. These invested funds also act as a partial hedge against changes in interest rates on Metropolitan's variable rate debt obligations. Interest income will vary over the next ten-year period as interest rates and cash balances available for investments will fluctuate.

Hydroelectric Power Sales

Metropolitan has 16 small hydroelectric plants on its distribution system. The combined generating capacity of these plants is approximately 122 Megawatts. Figure 21 shows the forecast of hydroelectric power revenues. These revenues, which are fairly stable over the ten-year forecast period, are dependent on the amount of water that flows through Metropolitan's conveyance system and the price paid.

Power from five of the plants (Phase I) is sold to the Department of Water Resources under an existing contract at a price based on a contractual unit rate methodology that uses a five-year average gas index, to supply power to the State Water Project.

Figure 21: Hydroelectric Power Revenues



Power from nine of the plants (Phases II-IV) is sold to the Los Angeles Department of Water and Power, Southern California Edison, and Southern California Public Power Authority (SCPPA). Prices average around $93 per MWh and are significantly higher than the prices in the previous contract, which averaged around $45 per MWh in the last five years.

Power from the Diamond Valley Lake (DVL) power plant, as available, is currently sold at market power rates. The generation is intermittent and dependent on operational need for delivery out of the reservoir for drought, supply or treatment purposes. Power from the Etiwanda plant is sold to Pacific Gas & Electric at prices which depend on monthly gas prices and hydro performance.

Benefits from the hydroelectric plants' environmental attributes including the Renewable Energy Credits (RECs) are included or bundled in the contract price for the Phase II-IV hydro units and for the Etiwanda Power Plant. Renewable Portfolio standard (RPS) California Energy Commission certification for the Phase I and DVL units was received in 2009. RECs are sold on an unbundled basis for particular time periods. Metropolitan is examining other ways to maximize the benefits from all the hydro plants' environmental attributes.

Metropolitan has undertaken studies to examine the potential expansion of current hydroelectric plants and the creation of new hydroelectric plants in the system. Five potential new hydroelectric plants have been identified based on an eight-year payback horizon. Four of these plants are associated with pressure control structures, and one is associated with an existing hydroelectric plant. The total capacity of these five new plants would be approximately 9 MW. Additional generation would be between 60,000 and 75,000 MWh per year, provided that the water diversions are within the range of the ten-year forecast. These facilities could generate additional revenues of up to $5 million per year.

Due to uncertainty regarding the outcome of the Board-approved feasibility study and the timeframe to build these new plants, these additional hydroelectric revenues are not reflected in the ten-year base case forecast.

Revenue from Rates and Charges

Metropolitan's current rate structure became effective January 1, 2003. For purposes of forecasting revenues for the 2010 LRFP, no change to the existing cost-of-service methodology and rate structure is assumed. The rate structure incorporates several aspects that improve Metropolitan's financial strength.

- The water rate was unbundled to facilitate a water transfer market. By pricing services for the use of system conveyance capacity separately from supply, a clear price signal is created. Because all users of Metropolitan's system are charged equally for using system capacity, Metropolitan's member agencies can now make an economic choice between supplies provided by Metropolitan or some other source.

- Tiered pricing of supply was implemented to encourage efficient resource management and recover proportionally more cost from agencies with growing demands for imported water.

- A capacity charge was included in the rate design to encourage member agencies to reduce the peak day and summer season demands they place on the system. Member agencies that place greater demand on system capacity pay a larger portion of such costs. Additionally, Metropolitan's cost for building additional peak capacity is reduced and/or deferred over the long term as local agencies are encouraged to invest in local resources and infrastructure that reduces peak demands on Metropolitan's system.

- A financial commitment to Metropolitan from the member agencies was secured through a Purchase Order. The majority of Metropolitan's 26 member agencies have submitted ten-year Purchase Orders for Metropolitan supplies. This represents a commitment by the member agencies to purchase at least 12.4 million acre-feet from Metropolitan through December 31, 2012. The ten-year Purchase Order provides that the member agency commits to purchase at least ten times 60 percent of its initial base firm demand. The initial base firm demand is the highest annual demand from fiscal year 1989/90 to fiscal year 2001/02 excluding replenishment and interim agricultural deliveries. If the agency does not purchase at least this amount over the ten-year period any remaining balance is charged the average Tier 1 Supply Rate over the term of the Purchase Order. In exchange for this commitment, the member agency may purchase up to 90 percent of its highest annual demand at the lower Tier 1 Supply Rate. Additional demands are charged the higher Tier 2 Supply Rate. Member agencies that elect not to submit a Purchase Order may only purchase up to 60 percent of their highest annual demand at the lower rate. Purchases in excess of the 60 percent are charged the higher rate. The Purchase Order provides a financial commitment to Metropolitan without shifting substantial risk to individual member agencies. The agencies that did not submit a Purchase Order do not routinely purchase enough water from Metropolitan to justify a Purchase Order.

Cost of Service Process

To determine the various rates and charges, Metropolitan uses cost of service principles. The cost of service process groups costs into major service functions and then sorts costs by the purposes that they were incurred to serve. The general cost of service process involves the four basic steps outlined below.

Step 1 - Development of Revenue Requirements

In the revenue requirement step, the costs that Metropolitan must recover through rates and charges, after consideration of other revenues, are identified. In this step other revenues such as property taxes, interest income and hydropower revenues are allocated among the various service functions, reducing the amount of costs recovered by the rates and charges.

Step 2 - Identification of Service Function Costs

In the functional allocation step, costs are allocated to different categories based on operational functions. The functional categories used in the cost of service process include:

- Supply - maintaining and developing reliable water supplies (water transfers)
- Conveyance and Aqueduct - conveying water to Southern California through the SWP, CRA and other related facilities
- Storage - storing supplies within Metropolitan's system
- Treatment - treating imported water supplies at Metropolitan's treatment plants
- Distribution - distributing water throughout Metropolitan's service area
- Demand Management - reducing the demand for imported water through the development of local supplies, water recycling, conservation and desalination
- Administrative and General - operations and maintenance support functions (human resources, legal, etc.)
- Hydroelectric - operation of 16 hydroelectric facilities.

Step 3 - Classification of Costs

In the cost classification step, functionalized costs are separated into categories according to their causes and behavioral characteristics. Costs incurred to meet average demands are identified separately from costs incurred to meet peak demands.

Step 4 - Allocation of Costs to Rate Design Elements

The allocation of costs to the rate design elements depends on the purpose for which the cost was incurred and the manner in which the member agencies use the Metropolitan system. In general, costs incurred to meet average system demands are recovered by dollar per acre-foot rates and are paid by the member agencies based on the volume of water purchased by each agency. Costs incurred to meet peak demands are recovered through a capacity charge and allocated to the member agencies based on peak demand behavior. Costs incurred to provide standby and emergency service are recovered through a fixed charge allocated on the basis of average demands.

The rates and charges revenues are discussed below, both in terms of volumetric revenues (revenue recovered by dollar per acre-foot unit rates that varies with the volume of water sold) and fixed revenues (revenue generated by fixed charges that does not vary with the volume of water sold) as well as each of the rates and charges that make up the rate structure.

Volumetric revenues

Total volumetric revenues are expected to increase from $1.1 billion in 2010/11 to $1.8 billion in 2019/20. Over this same period water sales are expected to decrease

from 2.0 million acre-feet in 2011/12 to 1.9 million acre-feet in 2019/20. Volumetric revenues include the components of the rate structure that are charged to the member agencies on a dollar per acre-foot basis. These components are:

- **Tier 1 and Tier 2 Water Supply Rates** - The Tier 1 Supply Rate, with the Delta Supply Surcharge, is $155 per acre-foot and the Tier 2 Supply Rate is $280 per acre-foot in 2011. The Tier 1 and Tier 2 Supply Rates recover Metropolitan's water supply costs. The Tier 2 Supply Rate reflects Metropolitan's cost of acquiring new water transfers. A member agency with a Purchase Order will be charged the Tier 2 Supply Rate for water purchases in excess of 90 percent of its base demand for member agencies with a Purchase Order and 60 percent of a member agency's base demand for member agencies without a Purchase Order. The Tier 1 Supply Rate is set to recover the remaining supply costs after accounting for revenues from the Tier 2 Supply Rate and a proportional amount of revenue from the Long-term Seasonal Storage Service Program and the Interim Agricultural Water Program. The Tier 1 Supply Rate is expected to increase from $155 per acre-foot to between $230 per acre-foot by 2020, an average annual increase of about 4.5 percent. As the cost of acquiring additional water transfers changes the Tier 2 Supply rate will be adjusted. The current forecast is that the Tier 2 rate will increase at 3.5 percent, which is commensurate with the inflationary cost increase in the cost of transfers. The Tier 2 Supply Rate will increase from $280 per acre-foot to $382 per acre-foot.

- **System Access Rate -** The system access rate recovers the capital and operations and maintenance costs for system conveyance and distribution capacity used to meet average system demands. As aging pipelines, canals and aqueducts are replaced and rehabilitated, the system access rate is expected to increase from $204 per acre-foot in 2011 to $380 per acre-foot in 2020, an average increase of about 7.2 percent per year.

- **Water Stewardship Rate -** The water stewardship rate recovers the cost of Metropolitan's investments in demand management such as the LRP and Conservation Credits Program. The Plan assumes that the Water Stewardship Rate increases to recover the costs of Metropolitan's support for additional recycling, groundwater recovery and desalination as set forth in revised goals for these programs defined in the 2010 IRP update. The water stewardship rate is expected to increase from $41 per acre-foot in calendar year 2011 to $58 per acre-foot in 2020.

- **System Power Rate -** The system power rate recovers the cost of energy used for pumping on the State Water Project and the Colorado River Aqueduct. The system power rate is $127 per acre-foot in 2011. However, energy costs are projected to rise into the future and the system power rate is expected to increase to $189 per acre-foot by 2020.

- **Treatment Surcharge –** Metropolitan provides treated water service through five treatment plants located throughout the service area. On average, about 60 percent of the water sold by Metropolitan is treated. The Treatment Surcharge recovers the cost of providing treated water service and is currently $217 per

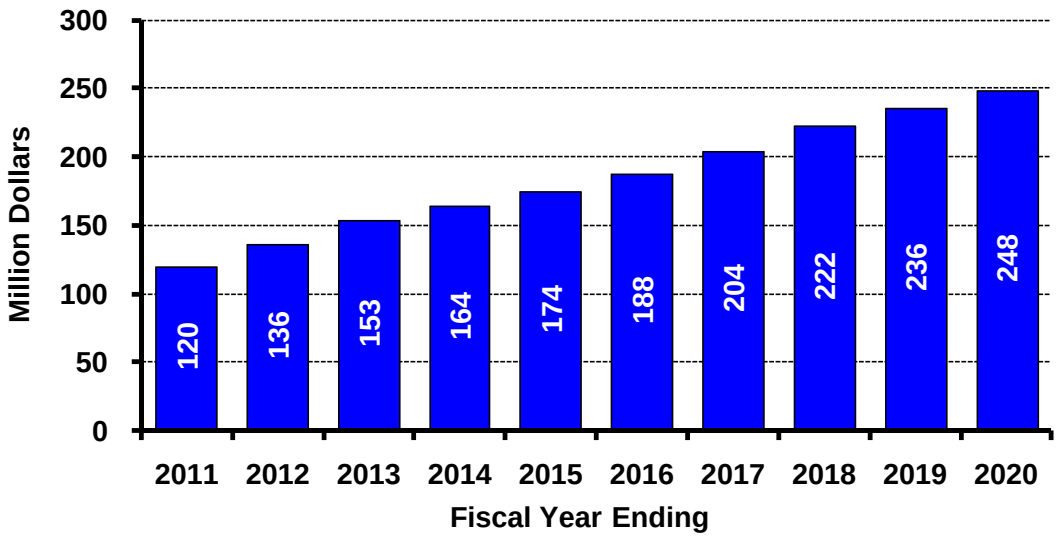
acre-foot. Increases in variable treatment cost, operations and maintenance costs, rehabilitation and replacement of treatment plant facilities, and treatment plant improvements such as the Oxidation Retrofit Program all contribute to the upward pressure to the treatment surcharge. The Treatment Surcharge is expected to increase to $357 per acre-foot by 2020, an average annual increase of 5.7 percent.

Fixed Charge Revenues

Fixed charge revenues are paid to Metropolitan regardless of the amount of water the member agencies purchase in a particular year. Fixed charge revenues will increase from about $154 million in 2010/11 to about $293 million in 2019/20. Fixed charge revenues include the Readiness-to-Serve Charge and the Capacity Charge.

• **Readiness-to-Serve Charge** (RTS) - The RTS recovers the cost of system emergency storage and conveyance and distribution standby costs not paid by property taxes. The RTS is allocated to member agencies on the basis of a ten-year rolling average of firm deliveries. This charge is expected to generate about $120 million in fiscal year 2010/11, increasing to $248 million in 2019/20. Twenty-two of Metropolitan's twenty-six member agencies elected to have Metropolitan recover a portion of their RTS obligation directly from property owners through a per parcel Standby Charge. Metropolitan's Standby Charge recovers $43 million each year. Figure 22 illustrates the expected total RTS. Changes in the CIP will result in changes in the required RTS in the future.

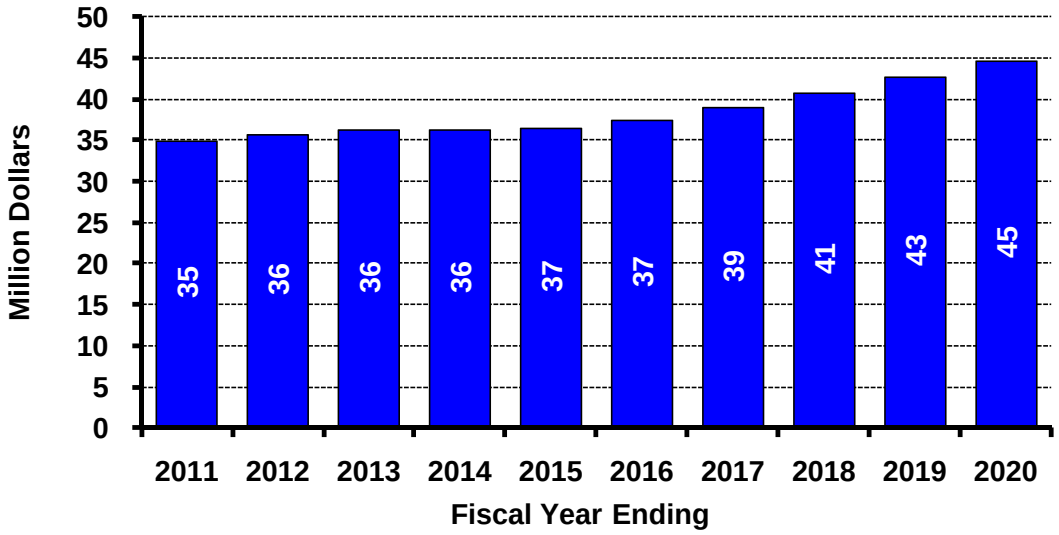
Figure 22: Readiness-to-Serve Charge



• **Capacity Charge** - The Capacity Charge recovers the cost of distribution capacity used to meet peak day demands. Effective January 1, 2011, the Capacity Charge is $7,200 per cfs. By January 1, 2020, the Capacity Charge is expected to be $9,300 per cfs and generate about $45 million annually. The Capacity Charge is levied on the maximum day firm demand for the summer months of May through

September for the past three years. Figure 23 illustrates the expected Capacity Charge in dollars per cubic foot second on the left axis and in millions of dollars of revenue on the right axis. This charge is increasing over time, reflecting increases in capital financing costs for distribution infrastructure.

Figure 23: Capacity Charge Revenues



Rates and Charges Forecast

Many factors influence the future level of Metropolitan's rates and charges. For this reason Metropolitan makes a practice of presenting a forecast along with a scenario of possible outcomes capturing a low rate scenario and a high rate scenario. The eventual level of the future rates and charges will be determined by outcomes of decision factors and risk factors.

Risk factors

Risk factors may impact future rates and charges. Risk factors are less predictable and more difficult to manage and require risk mitigation strategies. Risk factors specifically considered include:

Low Rates Scenario

Under the low rates scenario, Metropolitan sells approximately 200,000 acre-feet more water than under the forecast scenario. The basis for the additional sales is analyses prepared during the development of the 2010 IRP Update. An improved economic picture resulting in greater population growth than forecasted could lead to additional water sales above those projected in the 2010 IRP Update. A corresponding assumption in the low rate scenario is that the additional sales derive from higher

allocations on the SWP, rather than the purchase of transfer water. The result, financially, is additional sales at only the cost of power on the SWP and some variable treatment costs.

High Rates Scenario

Under the high rates scenario, the following vary from the base forecast:

- Sales are 1.8 MAF beginning in 2011/12. This low sales forecast assumes that Metropolitan's sales do not recover from their current low levels. This could be driven by a weak economic recovery, conservation over and above levels forecasted in the 2010 IRP Update, and weather that deviates from normal.

- The cost of the DHCCP doubles. At this time, the cost estimate for the DHCCP is very preliminary. Once a preferred option is identified, better cost estimates can be developed.

- The cost to borrow to fund the CIP is higher than the base forecast. For purposes of developing the high rates sensitivity, future borrowing costs are estimated to be three percent higher for both fixed and variable rate debt. The higher debt costs are partially offset by higher interest earnings.

- Additional R&R expenditures are added to the SWP cost forecast. At this time, DWR does not have a method to forecast potential R&R needs, such as Metropolitan's Asset Replacement Model. The SWP is approaching 45 years of service and numerous facilities are experiencing forced outages. Estimates have been added to the SWP cost forecast to cover the cost to finance future R&R expenditures.

Assumptions

The major underlying assumptions used to develop the rate forecast are outlined in Table 4 below. Metropolitan's objective is to provide manageable average annual increases in rates and charges at approximately 5.6 percent per year. As shown in Figure 25, the average rate (all rates and charges revenue divided by sales) is expected to increase from $733 per acre-foot in fiscal year 2011 to approximately $1,205 per acre-foot in fiscal year 2020. Figure 24 also illustrates the potential range based on the variable for the low and high rate scenarios discussed above. Table 5 shows the rates and charges that result from the forecast presented in this document.

Table 4: Assumptions for High/Low Rates Scenarios

Assumption	Low Rate Forecast	High Rate Forecast
Economic Trends	200 TAF additional sales, met with higher SWP allocation	Sales projected at 1.8 MAF per year beginning in 2011/12
SWP R&R costs	No additional costs to the DWR forecast	Additional expenditures added to the SWP cost forecast for additional R&R
DHCCP costs	DHCCP costs at $10 billion; no water supply benefits within the 10-year window	DHCCP costs at $20 billion; no water supply benefits within the 10-year window
Borrowing costs	Fixed debt at 5.0%, variable debt at 2.3%	Fixed debt at 8.0%, variable debt at 5.3%

Figure 24: Average Rates with High/Low Scenarios

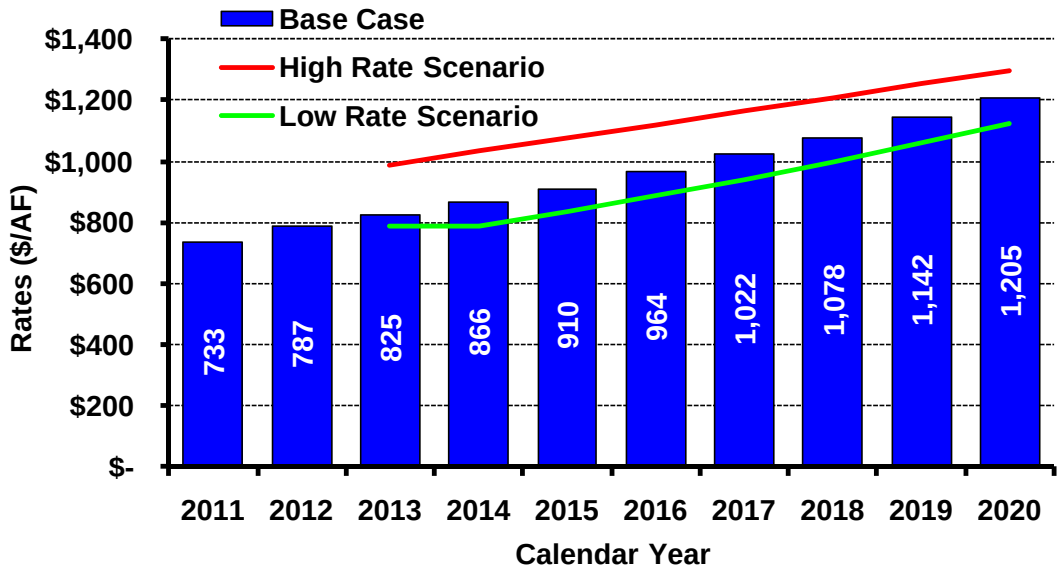


Table 5: Rates and Charges Forecast

Rates and Charges Effective January 1st	2010*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tier 1 Supply Rate with Delta Supply Surcharge ($/AF)	$170	$155	$164	$164	$168	$173	$180	$188	$198	$214	$230
Tier 2 Supply Rate ($/AF)	$280	$280	$290	$300	$311	$322	$333	$345	$357	$369	$382
System Access Rate ($/AF)	$154	$204	$217	$234	$250	$270	$294	$318	$339	$357	$380
Water Stewardship Rate ($/AF)	$41	$41	$43	$46	$51	$54	$55	$58	$58	$58	$58
System Power Rate ($/AF)	$119	$127	$136	$136	$136	$136	$145	$151	$163	$179	$189
Full Service Untreated Volumetric Cost ($/AF)											
Tier 1	$484	$527	$560	$580	$605	$633	$674	$715	$758	$808	$857
Tier 2	$594	$652	$686	$716	$748	$782	$827	$872	$917	$963	$1,009
Replenishment Water Rate Untreated ($/AF)	$366	$409	$442	$462	$487	$515	$556	$597	$640	$690	$739
Interim Agricultural Water Program Untreated ($/AF)**	$416	$482	$537								
Treatment Surcharge ($/AF)	$217	$217	$234	$253	$272	$287	$296	$308	$321	$338	$357
Full Service Treated Volumetric Cost ($/AF)											
Tier 1	$701	$744	$794	$833	$877	$920	$970	$1,023	$1,079	$1,146	$1,214
Tier 2	$811	$869	$920	$969	$1,020	$1,069	$1,123	$1,180	$1,238	$1,301	$1,366
Treated Replenishment Water Rate ($/AF)	$558	$601	$651	$690	$734	$777	$827	$880	$936	$1,003	$1,071
Treated Interim Agricultural Water Program ($/AF)**	$615	$687	$765								
Readiness-to-Serve Charge ($M)	$114	$125	$146	$160	$168	$180	$195	$213	$231	$240	$256
Capacity Charge ($/cfs)	$7,200	$7,200	$7,400	$7,400	$7,400	$7,500	$7,800	$8,100	$8,500	$8,900	$9,300

* Most rates effective September 1, 2009.

** The Interim Agricultural Water Program will be discontinued after 2012.

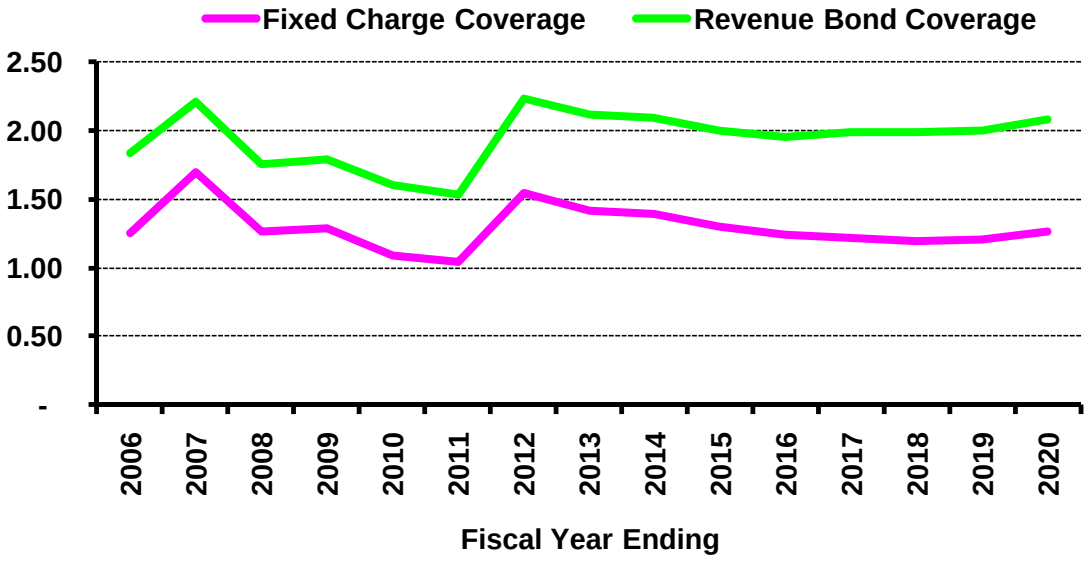
Financial Indicators

Metropolitan monitors various indicators of its financial strength and flexibility. The following discussion summarizes forecasted trends in these indicators, resulting from the forecasted expenditures and receipts, including assumed changes in rates and charges.

Financial Ratios

Financial ratios are key indicators commonly used by rating agencies and the investment community to measure a municipal utility's financial strength. Metropolitan's existing financial policies include goals of maintaining revenue bond debt service coverage of at least 2.00 times and fixed charge coverage of 1.2 times.

Figure 25: Coverage Ratios



Revenue Bond Debt Service Coverage

Revenue bond debt service coverage is one primary indicator of credit quality, and is calculated by dividing net operating revenues by debt service. This measures the amount that net operating revenues exceed or "cover" debt service payments over a period of time. Higher coverage levels are preferred since they indicate a greater margin of protection for bondholders. For example, a municipality with 2.00 times debt service coverage has twice the net operating revenues required to meet debt service payments. As shown in Figure 25, the 2010 LRFP forecasts that Metropolitan's revenue bond coverage ratio averages 2.0 times over the ten-year period. The median coverage ratio for AA rated water systems by Fitch was 2.3 times in 2010. Metropolitan's minimum coverage policy is vital to continued strong credit ratings and low cost bond funding.

Fixed Charge Coverage

In addition to revenue bond debt service coverage, Metropolitan also measures total coverage of all fixed obligations after payment of operating expenditures. This additional measure is used primarily because of Metropolitan's recurring capital costs for the State Water Contract. Rating agencies expect that a financially sound utility consistently demonstrate an ability to fund all recurring costs, whether they are operating expenditures, debt service payments or other contractual payments. As shown in Figure 25, the 2010 LRFP forecasts that Metropolitan's fixed charge coverage ratio averages 1.2 times over the ten-year period. These levels help maintain strong credit ratings and access to the capital markets at low cost.

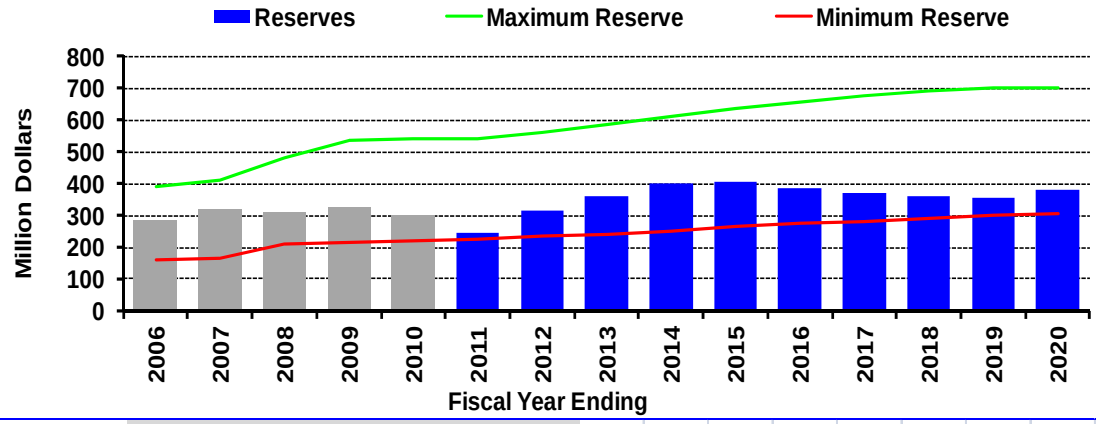
Fund Levels

Metropolitan's fund policies are formulated to meet requirements as set forth in bond covenants and by the Board. Most importantly, the reserve fund policies provide Metropolitan with the ability to meet anticipated cash flow requirements and mitigate unanticipated cost increases or revenue decreases, helping to ensure that rates and charges are predictable. Minimum and maximum reserve targets govern the water rate stabilization fund balance. The minimum and maximum reserve targets are determined by a formula developed in the 1999 Plan, after significant input from member agencies. The formula takes into account the variability in water sales, the amount of fixed costs recovered by volumetric rates and the duration of a period of low sales. As reserves decrease below the maximum reserve target Metropolitan's ability to mitigate for unforeseen cost increases or decreases in water sales caused by wet weather is reduced.

As has been seen from the last several years, Metropolitan's risks to raising necessary revenues are not limited to a wet hydrology, but include a weak economy, mild summer weather and regulatory actions that limit supplies. Maintaining adequate reserve levels will help ensure financial stability during periods of revenue uncertainty, while maintaining liquidity needs and providing financial flexibility. Reserves should not be used to fund systemic cost increases. Therefore, the Board should set rates at levels necessary to fund the costs of providing services to Metropolitan's member agencies and maintain minimum reserve levels.

Figure 26 summarizes the financial metrics of the 2010 LRFP. Beginning in 2011/12, Metropolitan forecasts that revenue bond coverage and fixed charge coverage ratios will meet the board-established targets; reserve levels will be above minimums as established by board policy; PAYGO expenditures are set at a level that is consistent with the Board policy adopted in June 2002 that R&R expenditures would be funded from revenues, with the proposed amount capped at $125 million to provide financial flexibility; and projected rate increases are adequate to cover costs with moderated changes from one year to another.

Figure 26: 2010 LRFP Financial Metrics



Ave Rate Increase	2%	3%	6%	14%	20%	7.5%	7.5%	5%	5%	5%	6%	6%	6%	6%	6%
PAYGO, $M	88	95	43	30	37	45	125	125	125	125	125	125	125	125	125
Rev. Bond Cvg	1.8	2.2	1.8	1.8	1.6	1.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
Fixed Chg Cvg	1.3	1.7	1.3	1.3	1.1	1.0	1.5	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.3

Section 3

Debt Management

Section 3.
Debt Management

Introduction

The Metropolitan Water District of Southern California ("Metropolitan") finances the on-going requirements of its capital program primarily through the issuance of tax-exempt bonded indebtedness. Metropolitan's Debt Policy is established to provide the framework and guidance for incurring, managing, structuring, and administering Metropolitan's debt management program. The Debt Policy formalizes existing practices and procedures in accordance with the requirements of the Metropolitan Act (MWD Act), the Metropolitan Administrative Code, Master Revenue Bond Resolution, Supplemental Revenue Bond Resolutions, and the Long Range Finance Plan.

Authority to Issue Bonds

Metropolitan's Water Revenue Bonds are issued pursuant to the MWD Act and Metropolitan's Master Revenue Bond Resolution (including Supplemental Resolutions). Water Revenue Bonds may be issued in an unlimited principal amount, subject to certain limitations contained in the MWD Act, and may be issued in a Series pursuant to Supplemental Resolutions as approved by Metropolitan's Board of Directors. The Supplemental Resolutions are adopted under the terms and conditions provided in the Master Resolution which include the following:

- Redemption provisions for the bonds
- Pledge of Net Operating Revenues
- Security and parity obligations
- Priority of flow of funds
- Establishment of appropriate funds
- Investment of moneys
- Covenant pledge to bondholders
- Defeasance of bonds
- Defaults and remedies
- Tax covenants

For a conformed copy of the Master Resolution of the Board of Directors of Metropolitan, see **Appendix 4** attached. Metropolitan covenants in the Master Revenue Bond Resolution that no additional debt payable from operating revenues may be issued having any priority in payment over parity obligations. Metropolitan may issue subordinate debt obligations on the basis that the debt service payments are subordinate to debt service payments for parity obligations. In accordance with the terms and conditions of the Master Bond Resolution, Metropolitan is authorized to issue from time to time a variety of tax-exempt debt instruments, including but not limited to the following:

- Water Revenue Bonds –Fixed Rate
- Water Revenue Bonds – Variable Rate Demand Obligations

- Water Revenue Bonds – Variable Rate, Auction Rate Securities
- Commercial Paper Notes
- General Obligation Bonds
- Refunding Bonds: Water Revenue and General Obligation
- Bond Anticipation Notes
- Certificates of Participation
- Taxable Build America Bonds
    - Issued under the provisions of the American Recovery and Reinvestment Act of 2009
- Other types of bonded indebtedness as authorized by the Metropolitan Act or the Metropolitan Board of Directors

A Supplemental Bond Resolution to the Master Water Revenue Bond Resolution is required with Board approval for the issuance of new money water revenue bonds, and the Fourth Supplemental Bond Resolution allows Metropolitan to issue water revenue refunding bonds in accordance with Board adopted refunding guidelines (per the terms and conditions outlined in Metropolitan's Bond Refunding Guidelines in **Appendix 1**). In accordance with the Supplemental Resolution, an Ad Hoc Committee of the Board shall be established with authority to determine the size of the bond financing, the date of the bond pricings, and the authority to sell bonds to an underwriting syndicate. The Ad Hoc Committee consists of the Chairman of the Board, the Chairman of the Business and Finance Committee, and the General Manager of Metropolitan. The Chief Financial Officer of Metropolitan shall get final approval of the terms and conditions of any issuance of bonds from the Ad Hoc Committee.

Metropolitan Water District Act

The Metropolitan Act provides for the issuance of water revenue and general obligation bonds. The Metropolitan Act required a special election of the voters within the service area to enable Metropolitan to issue water revenue bonds. The issuance of water revenue bonds was approved by the voters within Metropolitan's service area via an election on June 4, 1974, and the issuance of general obligation bonds was approved by the voters within Metropolitan's service area via an election on June 7, 1966.

The Metropolitan Act provides limitations on the amount of debt that may be incurred by Metropolitan. The limitation includes all debt including water revenue bonds, general obligation bonds, and other forms of indebtedness. Section 123 of the Metropolitan Act limits the total indebtedness of Metropolitan to fifteen percent of the assessed value of all taxable property within the service area of Metropolitan. In addition to the Section 123 Act limitation, Section 239.2 of the Act specifies that no water revenue bonds may be issued, except for the purpose of refunding, unless the amount of net assets of Metropolitan as shown on the balance sheet as of the end of the fiscal year prior to the issuance of the bonds, equals at least 100 percent of the aggregate amount of water revenue bonds outstanding following the issuance of the new bonds.

Debt Financing Objectives

Metropolitan shall meet all funding requirements of the capital investment program, primarily from debt issuance. The portion of fixed and variable rate debt to be issued shall be in accordance with the parameters, guidelines, and policies established from time to time by the Board of Directors as detailed within this policy. The portion of the capital funding requirements to be funded from operating revenues shall be in accordance with Board policy.

- Metropolitan shall strive to achieve the highest possible bond ratings for its water revenue bonds (both long term and short term debt); general obligation bonds; and other forms of indebtedness.
- Metropolitan shall consider the use of bond insurance should the cost of such insurance be economically feasible for a bond transaction.
- Metropolitan shall consider the impact an issuance of bonds will have on the total financial position of Metropolitan before deciding on the sizing, maturity schedule, and type of debt to be issued.
- Metropolitan shall consider refunding existing bonds in accordance with the bond refunding guidelines established within this debt policy (see **Appendix 1**: Bond Refunding Guidelines).
- Metropolitan shall consider the use of interest rate swaps in accordance with the guidelines and policies set forth by the Board of Directors (see **Appendix 2**: Master Swap Resolution and Master Swap Policy).
- Metropolitan shall take advantage of financing opportunities in the capital markets to mitigate future increases in debt service costs.
- Metropolitan shall use debt financings and available cash reserves to re-structure Metropolitan's annual debt service costs in order to mitigate the near term impacts of financing costs and financial risks to water rate payers.
- Metropolitan shall consider the following factors when determining the type of debt to issue, including, but not limited to the following:

    - The existing make-up of Metropolitan's debt portfolio
    - The general level of interest rates for municipal bond financings (including the net cost to Metropolitan after receipt of the federal subsidy for Build America Bonds)
    - The relative level of interest rates associated with interest rate swap transactions
    - The term (average life) of a financing transaction
    - The impact that any debt financing has on the level of variable rate debt exposure
    - The dollar size of Metropolitan's investment portfolio
    - The availability and cost of liquidity facilities in support of variable rate debt issuance
    - The availability and cost of a revolving credit facility or variable rate debt supported by self liquidity
    - The shape of the various tax-exempt and taxable interest rate curves

(steep, inverted, or flat)
- The spread between tax-exempt and taxable interest rates
- Other considerations, as applicable

In order to mitigate the impact of increasing debt service payments on water rate payers, Metropolitan may at any time determine to restructure its annual debt service requirements to reduce or smooth out annual debt service payments. The following issues shall be considered in Metropolitan's decision making process regarding the restructuring of debt:

- Timing and sizing of new money debt issuance.
- Structure of annual debt service payments for new money debt issuance.
- Metropolitan's willingness to periodically modify the level of variable rate debt exposure.
- Interest rate swap exposure, in total, and by counterparty.
- The amount and timing of available cash reserves for cash defeasances or variable rate debt supported by self liquidity.
- The benefits and risks of bond refunding opportunities for outstanding debt.

Once the various financial issues are addressed and considered by staff, and the Ad Hoc Committee of the Board, Metropolitan can employ various debt restructuring strategies that consider the following:

- Debt restructuring can be realized through bond refundings and through interest rate swap transactions in historically low interest rate markets.
- Use of available cash reserves to defease outstanding debt.
- Reduction in near term debt service requirements, with extension of principal payments to better match the average life of the assets initially funded from debt proceeds.
- Annual debt service payments for new money debt issuance can be structured to level out or "fill in" year to year changes in cumulative annual debt service payments for the entire debt portfolio.

In addition, it shall be the policy of Metropolitan to maintain revenue bond debt service coverage and fixed charge coverage at the following levels:

- Revenue bond debt service coverage (parity obligations): 2.00 times
- Fixed charge coverage: 1.20 times

Bond Ratings

Metropolitan is currently undertaking a $4.0 billion CIP of which over $2.8 billion is planned to be funded from new water revenue bonds to be issued through 2020. In order to continue to access the municipal bond market, Metropolitan must continue to demonstrate that it remains financially sound with a strong willingness and ability to pay its debt in full and on time. A recognized indicator of such financial integrity is the bond

ratings assigned by the three major bond rating services, Standard and Poor's (S&P), Fitch Ratings (Fitch), and Moody's Investors Service (Moody's) . The ratings are letter-grade indicators of a municipality's financial health. These ratings have been used by investors for decades as a key indicator of credit quality. Metropolitan's current bond ratings are among the highest rated in the nation, with a AAA rating from S&P, AAA from Fitch, and Aa1 rating from Moody's. Metropolitan greatly benefits from these strong ratings.

The strong ratings assure continued market access to issue new revenue bonds, and the interest rates on Metropolitan's debt will be lower as a result of its strong credit quality. The spread in interest rates, between stronger and weaker credits, varies depending on prevailing economic conditions, among other factors. However, in times of heightened economic uncertainty, which occurred in 2007 and 2008, the interest rate difference between highly rated issuers and lower rated issuers was substantial. As an example, the yield on a 20 year bond for a AAA rated entity is 4.15 %, while an A+ (five-rating category decline) rated entity would be 4.87 %. This 72 basis point difference would add an additional $16 million in interest costs, per $100 million of issuance, over the life of that bond. However, Metropolitan has other risks which may increase the cost of financing the CIP.

When issuing variable rate debt (VRDOs) costs for accessing and administering bank liquidity is a highly volatile and uncertain on-going obligation of Metropolitan. Metropolitan has benefitted from its strong credit ratings allowing it to continually access this bank support at attractive rates. The benefit of Metropolitan's strong credit ratings was evident during unstable periods in the municipal market, such as when issuers, including Metropolitan, were looking to replace their Auction Rate Securities (ARS) with VRDOs. This caused a substantial increase in the demand for bank liquidity and an actual shortage and rationing (by liquidity banks) of liquidity available for this purpose. Metropolitan, due exclusively to its strong credit ratings, was able to secure sufficient liquidity from two banks to refund its outstanding ARS at favorable liquidity rates relative to market rates then available in the general market. Many municipal issuers, with weaker credit ratings, were not able to access such bank liquidity and were forced to refund their ARS with fixed rate debt at a much higher cost. The differential, in this case, would be between 200 to 300 basis points in the cost of variable versus fixed rate debt. An erosion in Metropolitan's credit rating would have additional financial impacts (in addition to the higher cost of fixed rate debt financing) to Metropolitan which may include the following (note, the primary financial risk to Metropolitan would be a downgrade to the "A' rating category):

- the potential for limited market access;
- higher interest costs for all of Metropolitan's variable rate debt (including variable rate debt not supported by a bank liquidity facility);
- additional costs for securing liquidity banks (facility renewals);
- additional costs if Metropolitan has to refund variable rate debt not supported by a bank liquidity facility;
- potential loss of market access for alternative VRDO products;

- loss of ability to utilize interest rate swap market for economic savings; and
- an increased administrative burden in administering Metropolitan's interest rate swap program.

Revenue Bond Debt Service Coverage and Fixed Charge Coverage

Revenue bond debt service coverage (DSC) is the primary indicator in determining a municipal utility's ability to fund its annual debt service costs. It is one of the key statistics used by the bond rating agencies in their credit evaluations. DSC measures the degree to which revenues, after paying recurring operating expenditures, are available to fund revenue bond debt service. For AAA/high-Aa rated municipal utilities such as Metropolitan, a DSC of 2.00x or better is expected. This provides a favorable margin to absorb unanticipated reductions in revenues or increases in operating expenses. For Metropolitan, the components of the DSC calculation are defined in the Master Resolution (see **Appendix 4**), and includes Operating Revenues, defined as all of Metropolitan's revenues that are legally available for the payment of revenue bond debt service. This includes water sales revenues, wheeling, RTS, capacity charges, power sales, certain components of interest income and miscellaneous revenues. Operating revenues do not include ad valorem property taxes, which are used to fund Metropolitan's General Obligation bond debt service and certain components of the State Water Project (SWP) capital costs. Also excluded is interest income from the water revenue bond construction fund and other restricted funds. Subtracted from Operating Revenues are Operation and Maintenance Expenditures, defined as "the necessary expenditures for operating and maintaining the properties, works, and facilities of Metropolitan…". The difference results in Net Operating Revenues, (NOR) which is then divided by annual revenue bond debt service, plus debt service on any parity obligations to determine water revenue bond debt service coverage.

The coverage, or the amount by which NOR exceeds annual revenue bond debt service, reflects a financial margin by which available revenues exceed annual debt service. The larger the difference, the greater protection afforded bondholders. In addition, this difference also reflects funds which, unless they are committed for some other purpose, are then available for funding capital projects from current year revenues (or pay-as-you-go (PAYGO) funding) or to be used in future years to mitigate potential increases in water rates and charges. In Metropolitan's case, there are additional recurring expenditures which are funded after revenue bond debt service is paid. These expenditures are certain capital payments to the State Water Project (SWP). SWP expenditures include Operation and Maintenance Expenses, paid prior to debt service payments and also as capital charges which are funded from ad valorem property taxes and water revenues. Metropolitan reflects these capital charges as paid after revenue bond debt service. Therefore, Metropolitan calculates a Fixed Charge Coverage (FCC) ratio that provides a more comprehensive measure of the degree to which NOR cover all recurring fixed costs. The FCC is calculated as NOR divided by the sum of revenue bond debt service, other parity bond obligations, SWP capital payments and other debt service costs for loans or other obligations. To the extent that the FCC is positive, the margin represents funds available for PAYG funded capital, additions to financial reserves or for any other lawful purpose.

Metropolitan has policy guidelines for DSC and FCC of 2.00x and 1.20x. These levels are viewed as reasonable targets by the bond rating agencies and the financial community as being consistent with a strong AA or better credit. In most years, Metropolitan has met or exceeded these targets. This has been an important factor in the upgrading of Metropolitan's bond rating over the last several years. For the current fiscal year and next fiscal year, both DSC and FCC will fall below targeted levels, although they are expected to increase back to policy levels beginning in fiscal year 2011/12. Rating agency analysts have stated the importance of continually meeting targeted coverage levels in order for Metropolitan to maintain its current high bond ratings.

To conclude, Revenue Bond Debt Service coverage shall be calculated as follows: Total Operating Revenues less Total Operation and Maintenance Expenses equal Net Operating Revenues plus Other Revenues Pledged for Debt Service equals Adjusted Net Operating Revenues divided by Revenue Bond Debt Service. Fixed Charge Coverage is calculated as Net Operating Revenues divided by the sum of revenue bond debt service, other parity bond obligations, SWP capital payments and other debt service costs for loans or other obligations.

Financing Limitations

Revenue Bond Debt to Equity

In Section V of the Metropolitan Act (the Act) there is a stated limit on the amount of water revenue bond debt that may be outstanding at any time. Metropolitan's revenue bond debt may not exceed its net equity position, as calculated at the end of each fiscal year. This represents a fairly standard, and comparatively not too stringent, debt financing limitation. Equity equals Total Assets less Total Liabilities. This ratio measures the degree to which total operations have been funded by debt. A lower ratio reflects lower debt levels, which implies greater financial flexibility and lower operating risk. For a capital intensive utility such as Metropolitan with large fixed assets such as water treatment plants, a higher ratio is expected. Currently, Metropolitan's Debt/Equity ratio is 76%, which while somewhat above medians, is well below the 100% limitation. The ratio will likely increase as Metropolitan continues to issue debt to finance its CIP. The continued use of PAYG, which helps maintain financing capacity without increasing debt, and the maintenance of adequate financial reserves, will help to moderate future increases in the ratio and allow Metropolitan the flexibility to finance the CIP at favorable interest rate levels.

Additional Bonds Test

Per the Master Revenue Bond Resolution, adopted in 1991, there is an Additional Bonds Test (ABT) which is a standard feature for municipal issuers of revenue supported debt. The ABT demonstrates that existing revenues, with some adjustments, can fund the annual debt service costs of new bonds. The test must be met before any new money revenue debt can be issued. In Metropolitan's case, the test states that Net Operating Revenues, for any consecutive twelve month period during the twenty-four months preceding the issuance of additional water revenue bonds, must equal 120% of the maximum annual debt service on all outstanding and proposed additional water revenue

bonds. This component of the ABT is very stringent in that it uses very conservative assumptions for assumed rates on variable rate debt and only allows for adjustments for water rates in effect at the time of the calculation. This precludes the use of approved but not yet implemented water rate increases. Although Metropolitan adopts water rates approximately nine months prior to implementation on each January 1st, revenues may not be adjusted for these adopted rates. However, it is noted that the ABT also allows for the inclusion of "Additional Revenues" to meet the 120% test. As "Additional Revenues" include unrestricted reserves such as balances in the Revenue Remainder Fund and the Water Rate Stabilization Fund, ample flexibility exists to meet the ABT and therefore allow Metropolitan to issue additional debt to fund the future requirements of the CIP. The ABT is not required for bond refunding if it is determined that average annual debt service will not increase after the refunding.

Asset Liability Management

Metropolitan, like many other municipalities and utilities across the country, has developed financial risk management tools that are primarily directed to manage cash flow risk. With the ability to issue variable rate debt, Metropolitan has been able to lower the overall cost of financing its capital programs. In past years, Metropolitan measured its variable rate exposure by calculating the percentage of variable rate debt outstanding to total revenue bond debt outstanding. The primary objective was to manage cash flow "risk" in order to achieve budgetary and rate setting certainty. The traditional benchmark of variable rate to total debt was and is the variable rate policy for many municipalities, as a target or limit is set for the amount of variable rate debt to issue. Metropolitan's variable rate policy was initially set at no more than 20 percent variable rate debt to total revenue bond debt outstanding. This historical practice to measure and limit variable rate exposure was then modified in 2000.

Metropolitan's modified variable rate debt policy was implemented in the spring of 2000 after extensive analysis by staff, Metropolitan's financial advisors, and Metropolitan's senior investment banking team. Statistical simulation methods were used by Metropolitan's senior investment banking team to generate sequences of random events (utilizing historical data) related to taxable investment earnings rates and tax-exempt borrowing rates. The focus of the analyses was on the relationship between short-term taxable and short-term tax-exempt interest rate levels. The result of the statistical modeling was used as the basis for Metropolitan to establish the Board's variable rate debt policy of 32 percent of total water revenue bond debt outstanding. The primary reason for the increase in variable rate exposure to the 32 percent level was to better match Metropolitan's financial investments with variable rate exposure, thereby somewhat mitigating the financial impact to Metropolitan of rising and declining interest rates.

However, financial markets continued to change since the Board implemented the 32 percent policy. Interest rates declined significantly in the early part of the decade to historically low levels. In addition, in September 2001 the Board adopted a Master Swap Policy that has enabled Metropolitan to utilize synthetic financial products to better

manage its asset / liability structure. As such, a different approach to determine the appropriate level of variable rate exposure for Metropolitan was established.

With the primary goal of asset liability management to mitigate the impact of increased interest costs in a rising interest rate environment, to mitigate the impact of decreased interest income in a declining interest rate environment, and to determine the proper asset/liability balance, Metropolitan first determined its risk tolerance to rising and declining interest rates. To determine Metropolitan's tolerance to rising and declining interest rates, staff examined the financial impact to Metropolitan by determining net interest costs and reduced interest income under a number of interest rate sensitivity scenarios using funds available in the short-term investment portfolio, variable rate debt exposure, as well as assumptions for the weighted average days to maturity for the short-term investment portfolio and the spread between taxable and tax-exempt interest rates.

The analysis concluded that Metropolitan's variable rate exposure policy should not be based on a fixed percentage of total water revenue bond outstanding; Metropolitan's variable rate exposure policy shall be based on the overall net dollar impact to Metropolitan of changes in interest rates; the primary factors in determining the amount of variable rate exposure will be the balance available in the short-term investment portfolio and Metropolitan's risk tolerance to rising and declining interest rates; and the annual budget shall be used as a baseline against which to measure the impact to Metropolitan's financial condition of changes in interest rate levels. The Board then established a variable rate exposure policy based on the overall net dollar impact to Metropolitan of changes in interest rates. Variable rate exposure was set to ensure that changes in interest rates do not increase net interest costs by more than $5 million per year with an overall limit on variable rate exposure of 40 percent of total revenue bond debt outstanding.

Metropolitan's asset / liability management policy was approved by the Board of Director's in October 2004 through the adoption of the 2004/05 update to the Long Range Finance Plan.

Asset Liability Management Policy

During fiscal year 2001/02, at the direction of the Subcommittee on Investments and Bond Financing, Metropolitan modified its approach to managing interest rate risk by focusing on asset liability management. In general, Metropolitan's interest rate risk is minimized when long-term assets are matched with long-term fixed rate debt, and short-term assets are matched with variable rate debt. The primary purpose of asset liability matching is to mitigate the risk to Metropolitan of changing interest rates in both the taxable and tax-exempt markets. With the proper mix of fixed and variable rate debt, Metropolitan can reduce the risk to water rate payers of rising and declining interest rates by managing variable rate exposure.

In a declining interest rate market, Metropolitan's short-term investments will generate less interest income, while the cost of fixed rate debt will remain the same, thereby increasing the net cost in Metropolitan's balance sheet. In a declining interest rate

environment, the cost of variable rate debt will be decreasing, thereby offsetting a portion of the reduced interest income generated from the short-term investment portfolio. The reduction in net interest income will be mitigated by the savings in debt service.

Conversely, in a rising interest rate environment, the cost of Metropolitan's variable rate debt will increase, but will be offset by additional interest income from short-term investments. Additional income generated from the short-term investment portfolio will typically lag the increased costs of the variable rate debt. Therefore, the additional cost of variable rate debt is not perfectly hedged by additional interest income from the short-term investment portfolio. Since additional costs of variable rate debt in a rising interest rate environment cannot be fully mitigated by additional interest earnings from the short-term investment portfolio, Metropolitan determines the amount of additional interest risk that is acceptable. The additional costs to Metropolitan as a result of a rising interest rate environment may be calculated as additional net interest costs (defined as additional interest costs on variable rate exposure less additional interest income from the short-term investment portfolio).

Variable Rate Debt Policy

Metropolitan's existing variable rate debt policy was implemented in the spring of 2000 after extensive analysis by staff, Metropolitan's financial advisors, and Metropolitan's senior investment banking team. As a result of the analysis, the Board adopted a policy setting a variable rate target of 32 percent of total water revenue bond debt outstanding. The primary reason for the increase in variable rate exposure to the 32 percent level was to better match Metropolitan's financial investments with variable rate exposure, thereby mitigating the financial impact to Metropolitan of rising and declining interest rates.

However, financial markets have continued to change since the Board implemented the existing policy as interest rates have declined to historically low levels and other financial factors that influence variable rate debt strategies have changed. In addition, in September 2001 the Board adopted a Master Swap Policy that will enable Metropolitan to utilize synthetic financial products to better manage its asset/liability structure. As such, a different approach to determine the appropriate level of variable rate exposure for Metropolitan is warranted.

In the spring of 2000, staff and Metropolitan's financial advisors reviewed the results of various analyses using statistical simulation models performed by Metropolitan's senior investment banking team to assist Metropolitan in determining the appropriate level of variable rate exposure. The statistical simulation methods utilized by Metropolitan's senior investment banking team generated sequences of random events (utilizing historical data) related to taxable investment earnings rates and tax-exempt borrowing rates. The focus of the analyses was on the relationship between short-term taxable and short-term tax-exempt interest rate levels. The result of the statistical modeling was used as the basis for Metropolitan to establish the current variable rate debt policy of 32 percent of total water revenue bond debt outstanding. As of June 2004 Metropolitan has $947 million of variable rate water revenue bonds outstanding. In March 2002, Metropolitan priced a $200 million fixed receiver interest rate swap that increased

variable rate exposure from 25 percent to the 32 percent board policy level. As of June 30, 2004, an additional $785 million of variable rate debt is outstanding, but by virtue of interest rate swap agreements are treated as a fixed rate obligations to Metropolitan.

Appropriate Level of Variable Rate Debt Exposure

The appropriate level of variable rate exposure for Metropolitan is influenced by a number of factors, including the amount of funds available in the short-term investment portfolio, Metropolitan's tolerance to increases in net interest costs, credit rating considerations, liquidity provider capacity, swap counterparty capacity, and Metropolitan's overall asset and liability management guidelines and policies. The simulation analyses performed in the spring of 2000 considered these factors and used the following assumptions and considerations in determining the appropriate level of variable rate exposure for Metropolitan:

- No one level of variable rate exposure will completely eliminate interest rate risk;
- The optimal amount of variable rate exposure is the level that minimizes the variance in net interest margin (net interest margin is defined as the difference between taxable net interest earnings and tax-exempt interest payments);
- A static relationship between the taxable yield curve and the tax-exempt yield curve;
- Short-term tax-exempt interest costs were modeled utilizing the Bond Market Association ("BMA") index;
- The short-term investment portfolio totaled at least $475 million; and
- No changes in the Federal income tax structure.

The results of the simulation analyses concluded on average that Metropolitan could increase its variable rate exposure to 32 percent of total water revenue bond debt outstanding. Based on a short-term investment portfolio of $475 million, this conclusion represented "hedged" variable rate debt exposure of $825 million and "unhedged" variable rate debt exposure of $275 million. The interest rate hedge assumes that the $475 million available in the short-term investment portfolio is invested at taxable rates that "cover" the interest payments on $825 million of tax-exempt variable rate debt. That is, in a rising interest rate environment, the additional interest income generated from the $475 million short-term portfolio approximates the additional interest expense associated with $825 million of variable rate debt.

The analyses also concluded that interest rate risk was reduced by shortening the duration of assets and increasing the amount of the assets available to hedge variable rate exposure. Therefore, the greater the balance in the short-term investment portfolio, the greater the amount of variable rate exposure that could be tolerated by Metropolitan. Conversely, the lower the balance in the short-term investment portfolio, the lower the amount of variable rate exposure that could be tolerated by Metropolitan. This is an important conclusion of the analyses, because the balance in Metropolitan's short-term investment portfolio will vary from year to year. In addition, Metropolitan can derive

more benefit by moving down the much steeper tax-exempt yield curve by increasing variable rate exposure, than it loses by shortening investments (and increasing the balance in the short-term portfolio). The cost benefit analysis concluded that Metropolitan can increase its variable rate debt exposure (the hedged portion) by increasing the amount of funds available for investment in the short-term investment portfolio while simultaneously reducing interest rate risk. The results of the sensitivity analyses illustrated that the value of the results are highly dependent on the assumptions used to reach a result or conclusion.

Metropolitan must still determine an acceptable level of "unhedged" variable rate exposure over and above the hedged position in order to reach a policy level. The "unhedged position" is subjective in nature, but can be determined by focusing on the net dollar impact to Metropolitan in a changing interest rate environment. Therefore, rather than establish a variable rate exposure policy that focuses primarily on a percentage of total water revenue bonds outstanding, Metropolitan's tolerance to changes in interest rate levels must be quantified relative to revenue and cost projections used during the annual budget and rate setting process. By changing the policy focus from a percentage calculation to a methodology that recognizes the net interest cost impact to Metropolitan, Metropolitan can more effectively manage the impact of changes in interest rates to the water rate payers.

Metropolitan's Tolerance to Changes in Interest Rates

To mitigate interest rate risk, the primary factor in determining the appropriate level of variable rate exposure is the amount of funds available in the short-term investment portfolio. When short-term investments are re-invested in a rising interest rate market, a portion of the interest rate risk associated with variable rate debt instruments is mitigated. As such, the financial impact to Metropolitan of fluctuations in interest rates may be mitigated by managing the amount of variable rate exposure to the short-term portion of the investment portfolio. **The primary goal of asset liability management is to mitigate the impact of increased interest costs in a rising interest rate environment, and mitigate the impact of decreased interest income in a declining interest rate environment.** To determine the proper asset/liability balance, Metropolitan must first determine its risk tolerance to rising and declining interest rates. In order to determine Metropolitan's tolerance to rising and declining interest rates, the financial impact to Metropolitan was evaluated by determining net interest costs and reduced interest income under a number of interest rate sensitivity scenarios. The following assumptions were used in the sensitivity analysis:

- Short-term investment portfolio of $500 million
- Short-term investment portfolio weighted average days to maturity of 120 days
- Variable rate exposure of $955.2 million
- A taxable to tax-exempt ratio of 1.6 times, which represents the taxable to tax-exempt spread between short-term investment rates and the cost of Metropolitan's variable rate debt

Metropolitan's Tolerance to Rising Interest Rates

Net interest costs are defined as additional interest costs, less additional interest income from the short-term investment portfolio. The analysis focused solely on the additional interest income and additional interest costs over the period, not the absolute dollar amounts for interest income or interest expense. In this way the impact to Metropolitan of rising interest rates can be isolated. *The assumption is that the interest income and interest costs used in establishing water rates during the water rate setting and annual budget process do not take into account the impact of changes in interest rates over the rate setting or budget period.* Therefore, interest income and interest costs using interest rates at the time the budget and water rates and charges are adopted are already factored into Metropolitan's flow of funds. The financial impact (positive or negative) to Metropolitan in a rising interest rate market is based solely on the additional net interest cost not factored into the rate setting or annual budget process (Metropolitan's "reserves at risk").

Given a $500 million short-term investment portfolio with an average maturity of 120 days, interest income was projected over a one-year period in a rising interest rate market. A proxy for taxable interest rates was used and assumed to increase by 10 basis points per month over the one-year period. As the portfolio rolled off, the funds were reinvested (maintaining the 120-day average maturity) in a rising interest rate environment, thereby increasing Metropolitan's investment income over the period. Additional interest income was then compared to the additional costs to Metropolitan (when interest rates rise) on $955.2 million of variable rate exposure.

With variable rate exposure of $955.2 million, a monthly increase of 10 basis points per month will increase the cost of Metropolitan's variable rate instruments by $6.2 million over the one-year period. The interest rates for the variable rate exposure are anticipated to re-set in a daily or weekly interest rate mode. Although additional interest costs of $6.2 million would be borne by Metropolitan over the period, the additional interest income would mitigate the net interest increase to $3.1 million over the period. Figure 27 illustrates the additional net interest cost to Metropolitan in a rising interest rate market.

Figure 27: Additional Interest Payments

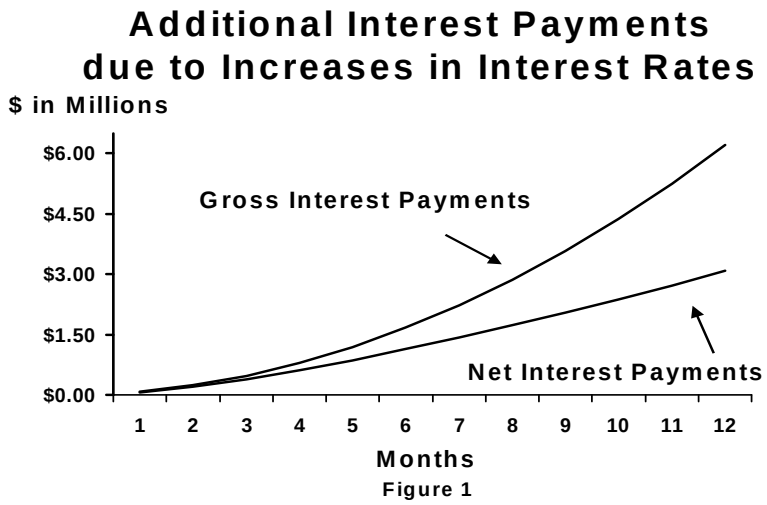


Figure 1

In a rising interest rate market, there will be additional net interest costs associated with variable rate exposure that were not anticipated during the water rate setting or annual budget process. Metropolitan's water rate payers would have to bear the financial burden of any additional net interest costs because such costs would be paid from the Water Rate Stabilization Fund reducing the availability of these funds to offset future water rate increases. The overall financial impact of additional net interest costs has to be taken into context with Metropolitan's overall budget. Since water sales revenues have averaged approximately $670 million per year from 1993 to 2002, a $3.1 million increase in net interest costs has a relatively minor impact on Metropolitan's overall financial condition.

The financial impact to Metropolitan of increasing variable rate exposure above the current level of $955.2 million was estimated to determine if additional variable rate exposure was warranted. The following Table 6 summarizes the potential net interest costs to Metropolitan in a rising interest rate environment for various levels of variable rate exposure:

Table 6: Net Interest Costs

Variable Rate Exposure	Additional Net Interest Cost
$ 955.2 million	$3.1 million
$1,055.2 million	$3.7 million
$1,155.2 million	$4.4 million
$1,255.2 million	$5.0 million

The analyses used the same set of parameters and assumptions as were previously described including a short-term investment portfolio of $500 million with a 120-day average maturity. The results of the analyses illustrate that if Metropolitan increases its variable rate exposure above the current level of $955.2 million, additional net interest

costs of up to $5.0 million may be realized in a rising interest rate environment. Using the additional net interest cost sensitivity, the decision to adjust the level of variable rate exposure above or below the current level will be determined by the amount of "reserves at risk".

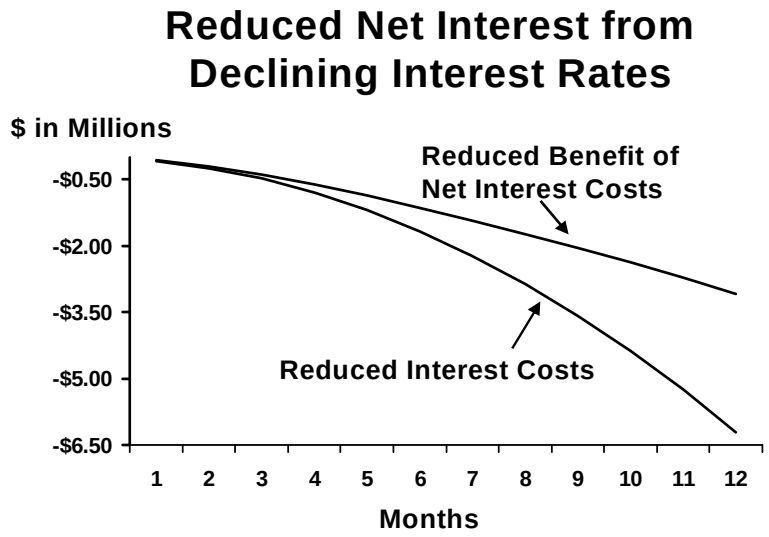
Metropolitan's Tolerance to Declining Interest Rates

In trying to quantify the potential financial impact to Metropolitan of a declining interest rate market, staff examined the reduction in net interest income to Metropolitan under a number of assumptions. Another way to consider the reduction in net interest income is to focus on the reduced benefit of lower interest costs due to less interest income in a declining interest rate environment. Metropolitan will realize the benefits of lower costs associated with variable rate exposure in a declining interest rate environment, but that benefit will be reduced by the amount of reduced interest income over the same period. Reduced net interest income to Metropolitan is defined as lower interest income in a declining interest rate environment net of the reduced interest costs associated with variable rate exposure. As interest rates decline, the cost of Metropolitan's variable rate exposure will also decrease mitigating the impact on the short-term investment portfolio of a decline in taxable interest rates. The analysis focuses solely on the interest income and additional reduced interest costs over the period, not the absolute dollar amounts of interest income or interest expense.

Given a $500 million short-term investment portfolio with an average maturity of 120 days, interest income was projected over a one-year period in a declining interest rate market. A proxy for taxable interest rates was used and assumed to decrease by 10 basis points per month over the one-year period. As the portfolio rolled off, the funds were reinvested (maintaining the 120-day average maturity) in a declining interest rate environment, thereby decreasing Metropolitan's investment income over the period. Reduced interest income was then compared to the reduced costs to Metropolitan associated with $955.2 million of variable rate exposure.

With variable rate exposure of $955.2 million, a monthly decrease of 10 basis points per month will decrease the cost of Metropolitan's variable rate exposure by $6.2 million over the one-year period. Although Metropolitan would realize reduced interest income of $3.1 million over the period, the reduced interest costs would mitigate the net decrease in interest income to $3.1 million over the period. Figure 28 illustrates the reduced net interest realized by Metropolitan from declining interest rates.

Figure 28: Reduced Net Interest Realized



Since reduced net interest income will be realized in a declining interest rate environment, staff examined the financial impact to Metropolitan of increasing variable rate exposure above the current level of $955.2 million. The following Table 7 summarizes the potential reduced benefit of net interest costs realized by Metropolitan in a declining interest rate environment for various levels of variable rate exposure:

Table 7: Reduced Benefit of Net Interest Costs

Variable Rate Exposure	Reduced Benefit of Net Interest Costs
$ 955.2 million	$3.1 million
$1,055.2 million	$3.7 million
$1,155.2 million	$4.4 million
$1,255.2 million	$5.0 million

The analyses used the same set of parameters and assumptions as were previously described including a short-term investment portfolio of $500 million with a 120-day average maturity. The results of the analyses illustrate that if Metropolitan increases its variable rate exposure above the current level of $955.2 million, the reduced benefit of lower interest costs may be up to $5.0 million in a declining interest rate environment. That is, in a rising interest rate environment, Metropolitan could realize additional costs of between $3.1 million and $5.0 million per year. Conversely, in a declining interest rate environment, Metropolitan could realize reduced costs of between $3.1 million and $5.0 million.

Rating Agency Consideration

In determining the appropriate level of variable interest rate exposure, the credit rating agencies consider such factors as the type of debt issued, Metropolitan's financial flexibility, sources of liquidity, Metropolitan's asset liability management philosophy, and the prudent use of other financial tools such as interest rate swaps. Therefore, any decision to change Metropolitan's variable interest rate exposure will be thoroughly discussed and reviewed with the rating agencies. Metropolitan has been in discussions with Fitch, Moody's, and Standard and Poor's regarding changes or modifications to the existing variable rate policy. Any changes to the policy will be reviewed with the rating agencies to ensure Metropolitan's strong credit ratings.

Liquidity Provider Capacity and Risks

Variable rate debt obligations have tender features that necessitate the use of liquidity support for the purchase price of tendered but unremarketed variable rate bonds. Metropolitan uses standby bond purchase agreements provided by highly rated financial institutions as the source of liquidity for the tendered bonds. Since there exists the need to constantly provide for a source of liquidity, Metropolitan incurs liquidity risk. The cost to Metropolitan for liquidity facilities currently ranges from 12 basis points to 25 basis points per year of principal and interest coverage for all outstanding variable rate debt obligations. In addition, Metropolitan is exposed to liquidity risk upon the expiration of each liquidity facility. Current market levels for liquidity facilities for Metropolitan are approximately 12 to 40 basis points per year depending on the term of the liquidity agreement. If the market for liquidity facilities changes in the future, Metropolitan's variable rate policy may be affected. Metropolitan continually monitors liquidity provider capacity and costs in consideration of increasing variable rate debt exposure.

How Metropolitan Will Utilize Asset Liability Strategy

Metropolitan's existing variable rate policy is a financially sound method to determine the appropriate level of variable rate exposure. Mainly due to limited funding available in the short-term investment portfolio, concerns over additional unbudgeted interest costs in a rising interest rate environment, and concerns over reduced interest income in a declining interest rate environment, Metropolitan's variable rate policy needs to be modified. Metropolitan's ability to manage both its short-term assets and variable rate liabilities is the primary consideration in trying to develop a prudent variable rate policy that takes into account the overall financial impact to Metropolitan of rising or declining taxable and tax-exempt interest rates.

Metropolitan will manage and communicate its short-term assets and variable rate liabilities by first establishing a baseline from which to determine the financial impact of changing interest rates. The baseline will be used as a measure (starting point) which will enable Metropolitan to quantify at any given point in time the dollar impact of rising or declining interest rates. In order to mitigate the dollar impact of net interest exposure in a rising interest rate environment, a reserve funding mechanism may be established.

Through appropriate monitoring, reporting, and strategy recommendations to the Board, Metropolitan will be able to prudently manage and quantify its net interest rate exposure.

Establishing a Baseline Methodology

In order to determine how Metropolitan will manage its variable rate exposure (short-term assets and variable rate liabilities), a starting point or a baseline must first be established to use as the basis for monitoring, reporting, and quantifying the financial impact to Metropolitan of the movement of interest rates.

Metropolitan may use one or both of the following baseline methods as a means of measuring the financial impact of changes in interest rates to Metropolitan:

Start of Period Method - interest rates applicable to the cost of variable rate exposure and the short-term investment portfolio at the start of a given period (such as July 1st for a fiscal year) are used as the baseline.

Annual Budget Process Method - interest rate assumptions for the cost of variable rate exposure and for the yield on the short-term investment portfolio are used as a baseline.

During the annual budget process, estimates for interest income and the cost of variable rate exposure are generated. The revenue and cost estimates are based upon a number of factors including projections for taxable and tax-exempt interest rates. By using taxable and tax-exempt interest rates assumed during the adoption of the annual budget, Metropolitan will be able to determine throughout the fiscal year the financial impact of changes in interest rates. Anticipated interest income and interest costs for variable rate exposure as developed in the annual budget process can be compared against actual dollar amounts for interest income and interest costs associated with the changes in interest rates over the budget period. Therefore, the dollar impact to Metropolitan of changes in interest rates is isolated.

By using the start of a period or the annual budget as a baseline for measuring interest rate movement, Metropolitan can monitor, report, and develop strategies for management of its asset / liability program.

Monitoring and Reporting

As interest rates change throughout the fiscal year, staff will monitor the net interest cost and net interest income to Metropolitan. Periodic reports throughout the fiscal year will be provided to the Board detailing Metropolitan's net interest cost or net interest income depending upon interest rate levels relative to starting point or budget assumptions. Reporting will include the relative financial impact of increased net interest costs or reduced interest income. In order to determine the overall financial impact to Metropolitan, the increase in net interest costs and reduction in net interest income must be compared to financial indicators of Metropolitan. Comparing the impact of changes in interest rates to operating revenues and net operating revenues should provide the necessary comparison parameter. Net operating revenues are determined in Metropolitan's flow of funds by reducing operating revenues by operating expenses over

a certain reporting period. Net operating revenues in conjunction with revenues from the sale of hydroelectric power and interest on investments are used to secure debt payments to Metropolitan's bondholders. The flow of funds for Metropolitan are represented as follows:

Operating revenues
Less operating expenses
Equals net operating revenues
Plus revenues from the sale of hydroelectric power
Plus interest on investments
Equals adjusted net operating revenues

By linking the financial impact of changes in interest rates to Metropolitan's net operating revenues, Metropolitan may determine the financial significance of changes in interest rates on the overall financial condition of the organization. In this way the relative impact to bondholders and Metropolitan's member agencies can be ascertained.

For example, if net interest costs have increased by $2 million and Metropolitan's net operating revenues are $100 million, then the relative financial impact to Metropolitan is two percent. The relative financial impact calculation can be used by Metropolitan to determine if the asset/liability mix needs to be adjusted or modified in order to reduce the percentage impact on net operating revenues. The increased net interest cost or reduction in interest income can also be used to report the impact on revenue bond debt service and fixed charge coverages. Since revenue bond debt service coverage and fixed charge coverage are primary indicators of Metropolitan's credit quality, the overall financial impact of changes in interest rates to Metropolitan and Metropolitan's bond holders can be quantified. Regardless of what indicators are used to determine the financial impact of changes in interest rates to Metropolitan, the Board must be comfortable with the risk of additional costs or reduced interest income over a certain period of time. Calculations of the impact of changes in interest rates can be communicated and explained to the Board, but the ability of Metropolitan to manage variable rate exposure is of primary importance.

Based on the results of the relative financial impact calculation, a strategy to effectively manage additional net interest costs or a reduction in interest income can be formulated and provided to the Board for consideration. The strategy to modify the asset / liability mix will include utilizing interest swaps (through Metropolitan's Master Swap Policy) to mitigate increasing net interest costs and reductions in net interest income due to changing interest rate markets.

Conclusion

Metropolitan's variable rate exposure policy will not be based on a fixed percentage of total water revenue bond outstanding.

Metropolitan's variable rate exposure policy should be based on the overall net dollar impact to Metropolitan of changes in interest rates.

The primary factors in determining the amount of variable rate exposure will be the balance available in the short-term investment portfolio and Metropolitan's risk tolerance to rising and declining interest rates.

The annual budget or a starting period methodology shall be used as a baseline against which to measure the impact to Metropolitan's financial condition of changes in interest rate levels.

Recommendation

Metropolitan's variable rate exposure policy shall be based on the overall net dollar impact to Metropolitan of changes in interest rates. Metropolitan shall measure and monitor interest rate exposure due to changes in interest rates and manage the amount of interest rate exposure to ensure that changes in interest rates do not increase net interest costs by more than $5 million per fiscal year.

Trabuco Canyon Water District

Shadow Rock Detention Basin Facility – Urban Water Recovery Project

Capital Cost Opinion

Shadow Rock Detention Basin Facility

	Project Duration = 40 weeks total, including 20 week construction period	
	SOURCES/REFERENCES: Existing Costs of similar projects and components (attached) and project experience.	
TASK	**Item**	
A	**Direct Project Administration Costs**	
1	Administration	
	Project Management (1 hr eng/wk, 1/2 hr/wk admin)	
	Contracts Administration/Accounting (1/2 hr/wk)	
	County of Orange Grant Management (12 hrs/month)	
	Expenses- Mail/Photocopying/FedExpress	
	Legal Counsel/MOU	
2	Project Reports	
	Data Collection & Quarterly,Annual, Final Reports - TCWD	
	Financial Reports -Consultant	
	Report Assistance/Preparation : Quarterly,Annual, Final Reports - City of RSM	
	$ 26,710	
B	**Easements**	
3	SCE and THCA Easements	
	SCE Easement Preparation- TCWD	
	THCA Easement Preparation- TCWD	
	Legal Counsel - Property Owner & TCWD	
	Title Search-Easements/Survey-Consultant	
	Preliminary Mapping & Survey-Consultant	
	$ 19,210	
C	**Planning/Design Engineering/Environmental Documentation**	
4	Assessment and Evaluation	
	Feasibility Study/Report-Consultant	
	Field Survey/Easement Preparation/Grading Plan Preparation-Consultant	
	Preliminary Site Civil and Mechanical Design - Consultant	
	Geotechnical Investigation/Report - Consultant	
	$ 45,960	
5	Final Design	
	Bioligical and On-site Materials Survey	
	Process Design and Hydraulic Analysis - Facility/Basin	
	Design Drawings and Specifications- Electrical Consultant	
	Design Drawings and Specifications- Civil/Mechanical Consultant	
	Front End Specifications - Bid Documents/Design Review	
	$ 46,400	
6	Environmental Documentation	
	CEQA - TCWD	
	CEQA - Legal Counsel	
	CEQA/MMMP Update - Legal Counsel	
	$ 2,950	
G	Other Costs	
	Permitting	
	TCWD/City of RSM Permitting Administration/Consultant	
	CDF&G 1602	
	NPDES-City of RSM	
	Grading Permit-City of RSM	
	Encroachment Permit-City of RSM	
	RWQCB- Construction NPDES Permit	
	WQ Certification 401	
	Vector Control Review-Consultant	
	US Army Corp Eng 404	

Shadow Rock Detention Basin Facility

	Project Duration = 40 weeks total, including 20 week construction period	
	SOURCES/REFERENCES: Existing Costs of similar projects and components (attached) and project experience.	
TASK	**Item**	
	$ 16,000	
D	**Construction/Implementation**	
8	Construction Contracting	
	Preparation of Bid Forms/Contract/Insurance/Bond Forms	
	Special Provisions	
	Bidding and Advertisement/Outsource Document Production and Labor	
	Preconstruction Conferences & Contractor Site Visits	
	Bid Evaluation and Contract Awarding	
	Design Engineer Management/Design Review	
	$ 7,970	
9	Construction (BID ITEMS)	
	Mobilization/Demobilization/Temporary Facilities	
	Bonds/Insurances	
	Pollution Prevention/Erosion Control/Permitting	
	SWPP	
	Site Survey/Trench Safety Requirements	
	Demolition/Disposal	
	Site Temp Power/Dewatering	
	SCE Site Power/Transformer	
	Site Electrical/MCC/Control Panels	
	Shadow Rock Pump Station Piping	
	Detention Basin Grading	
	Site RIP/RAP	
	Shadow Rock Pump Station Wet Well Construction	
	Yard Piping/Concrete V-Ditch	
	Replanting	
	As-Built/Record Drawings/Operations Manuals	
	Final Site Survey/Easement Mapping	
	$ 452,000	
E	**Environmental Compliance/Mitigation/Enhancement (BID ITEMS)**	
10	Environmental Compliance/Mitigation/Enhancement	
	Hydroseeding/Re-vegetation of area outside of Facility	
	Monitoring and Mitigation Program	
	$ 13,000	
F	**Construction Administration**	
11	Services During Construction Administration	
	Construction Management & Administration (4 hr/wk @ 20 weeks)	
	Site Inspection Services (4 hr/wk @ 20 weeks)	
	Engineering Submittals/RFIs Review and Processing	
	1) Operations & Maintenance Plan and 2)Startup Plan	
	Geotechnical Testing and Site Geotechnical	
12	Labor Compliance	
	Consultant Labor Compliance Program	
	$ 76,640	
	TOTAL	$ 706,840
H	**Construction Contingency (10%) per Workplan**	45200
	GRAND TOTAL	752040

Dove Canyon Conservation and Water Recovery Project - 2006/2007

EXISTING TCWD PROJECT COSTS

Item	Preliminary Design BUDGET	Cost to Date (Detail) w/o Contingency	NOTES & PreDesign Estimates
Design/CEQA/Legal	$ 159,000		
CEQA/Legal		$ 15,511	
Preliminary Design/Planning (SMWD)			
Teledine-Preliminary Design		$ 27,870	
PRP-Preliminary Design		$ 8,995	
Preliminary Mapping-Bob Leung		$ 17,530	
Title Search-1st American		$ 3,000	
Geotivity Flow Monitoring		$ 7,650	
Final Design			
Teledine		$ 39,500	
Teledine	$ -	$ 3,500	
Teledine As Builts	$ -	$ 5,000	
PRP Engineering		$ 54,000	
Analytical Topo Map	$ -	$ 10,914	
Leighton Geotechnical		$ -	
Phase I	$ 70,000		
Demolition and Restoration		$ 57,750	
Hydroseeding		$ 1,550	
Concrete Demolition C.O.		$ 7,200	
Erosion Control C.O.		$ 6,970	
Phase II	$ 995,000		
Reach 1- TickCreek to Dove Creek		$ 133,535	– PIPELINE
Reach 2 - Dove Creek to Dove Lake		$ 155,272	– PIPELINE
Additional Air Vac Valves C.O.		$ 7,391	
Tick PS		$ 120,000	
SCE		$ 832	– PUMP STATION WORK
Dove Creek Site Improvements/Site Power		$ 401,750	& SITE CIVIL WORK
Dove Creek P.S.		$ 148,000	(Similar @ Shadow Rock & less capacity)
Dove Creek Site Work C.O.- Gravel Access Road		$ 4,307	
Dove Creek Site Work C.O.- Over Excav & Additional Conc.		$ 27,623	Significant Grade Elevations/Creek Level at Site
Tick Creek Site WorkC.O.		$ 36,734	Significant Unknown Conditions at Tick Site
Site Survey and Easements (Bush & Assoc.)		$ 15,528	
Tick Creek Pump Prepurchase (Tekdraulics)		$ 20,059	
Miscellaneous		$ 2,010	
Contingency	$ 106,000	$ -	
TOTAL	$ 1,330,000	$ 1,339,980	
Change Orders To Date		$ 90,225	
O&M Change Orders (to be proposed)			
AC Pavement/Debris Control		$ 8,200	Paving Contractor (Needed for wet weather access)
Submersible Probes for Level Control (Material Costs)		$ 1,500	Installation by TCWD
3'x15' retaining rip rap around electrical panel -DOVE SITE		$ 3,910	
3'x25' retaining blocks around electrical panel -TICK SITE		$ 5,935	
uminum Grating at Tick Storm Drain Structure (Material Costs)		$ -	Installation by TCWD (needed for site maintenance)
Total		$ 19,545	
GRAND TOTAL		$ 1,359,525	

DESIGN/LEGAL/ ENV. DOC WORK (Similar @ Shadow Rock, less capacity)

EXISTING TCWD PROJECT COSTS FOR DOVE CREEK & TICK CREEK PROJECTS

Prepared By: Hector Ruiz/TCWD

EXISTING TCWD PROJECT COSTS

Construction Services
License No.

↓
SITE WORK
W/ RIP RAP

PROPOSAL

Proposal Submitted To:
Trabuco Canyon Water District
Attn: Hector Ruiz
Address:
Dove Canyon Dr.

City, State, ZIP:
Trabuco, Ca.

Job Name:
Road drainage repairs

Job Address:
Trabuco, CA.

We submit a proposal for the following Road drainage repairs:

Area #1. 18 tons rip/rap, 200 sq. ft. 6"c/c swale and 10 ft. 2' c/c headwall. $ 8740.00
Area #2. 14 tons rip/rap, 200 sq. ft. 6"c/c swale and 16 ft. 2' c/c headwall. $ 8740.00
Area #3. 14 tons rip/rap, 160 sq. ft. 6" c/c swale and 16ft. 2' c/c headwall $ 8740.00
Area #4. 35 tons rip/rap $ 3250.00
Area #5. 240 sq. ft. 6" c/c swale and 16ft. 2' c/c headwall $ 5950.00
Area #6. 360 sq. ft. 6" c/c swale and 16ft. 2' c/c headwall $ 6750.00
Area #7. 41 tons rip/rap, 200 sq. ft. 6" c/c swale and 16ft. 2' c/c headwall $ 10,240.00
Area #8. Grade only $ 1200.00
Area #9. 8 tons rip/rap, $ 2200.00

→ RIP RAP COSTS

All work described above to be complete for the sum of: Thirty nine thousand one hundred fifty dollars even. ($39,150.00)

Authorized By: [redacted]

Accepted By: _____
Date: _____

Trabuco Canyon Water District

Shadow Rock Detention Basin Facility – Urban Water Recovery Project

Operation and Maintenance Cost Opinion

XR

12/20/10

Shadow Rock Detention Basin Facility
Proposed Project Cost Estimates O&M

Assumptions:
- Project Operation: 20 years, $61.30 (Operator/Supervisor Rate) Hr.
- Pump horsepower: 30 hp @ 1/3 utilization
  - Power Costs from Dove/Tick Pump Stations (exst.)
  - Dove/Tick = 40 hp, SCE Electric Bill - 10 months

(1) $\therefore \frac{\frac{1}{3}(30)}{40} \times \frac{\$10,708}{10 \text{ months}} \times 12 = \$3,200$ annual power costs

(2) Silt Removal: Annual
3 operators x $61.30/hr x 8 hrs + Backhoe/Dump Truck $60/hr x 8 hr
+ On-site disposal (@ No cost)
= $1,953

(3) Trash/Debris Removal: Weekly
1 hr/week x 50 wks x $40/hr = $2,400

(4) Pump Replacement ≈ every 10 yrs.
@ combined 30 hp ≈ $15,475 + TAX+SHP 10% = $17,022
Replace/Installation: 3½ hrs x 3 operators x $61.30/hr
+ 3½ hrs x $60/hr Equipment
= $644 + 210 = $854
≈ 17,880 (Equip + Labor)

Dry Season Recovery Water to Santa Margarita Water District

Southern California Edison Company Billings					
Service Period			Amount Billed	TCWD share	SMWD share
12/16/2009	to	1/14/2010	$ 808.50	$ 404.25	$ 404.25
1/14/2010	to	2/16/2010	$ 388.15	$ 194.08	$ 194.08
2/16/2010	to	3/16/2010	$ 726.41	$ 363.21	$ 363.21
3/16/2010	to	4/15/2010	$ 957.39	$ 478.70	$ 478.70
4/15/2010	to	5/14/2010	$ 609.71	$ 304.86	$ 304.86
5/14/2010	to	6/15/2010	$ 1,221.53	$ 610.77	$ 610.77
6/15/2010	to	7/15/2010	$ 1,423.95	$ 711.98	$ 711.98
7/15/2010	to	8/13/2010	$ 1,533.71	$ 766.86	$ 766.86
8/13/2010	to	9/14/2010	$ 1,460.37	$ 730.19	$ 730.19
9/14/2010	to	10/14/2010	$ 1,578.87	$ 789.44	$ 789.44
				$ -	$ -
				$ -	$ -
				$ -	$ -
				$ -	$ -
				$ -	$ -
Total to Date			$ 10,708.59	$ 5,354.30	$ 5,354.30

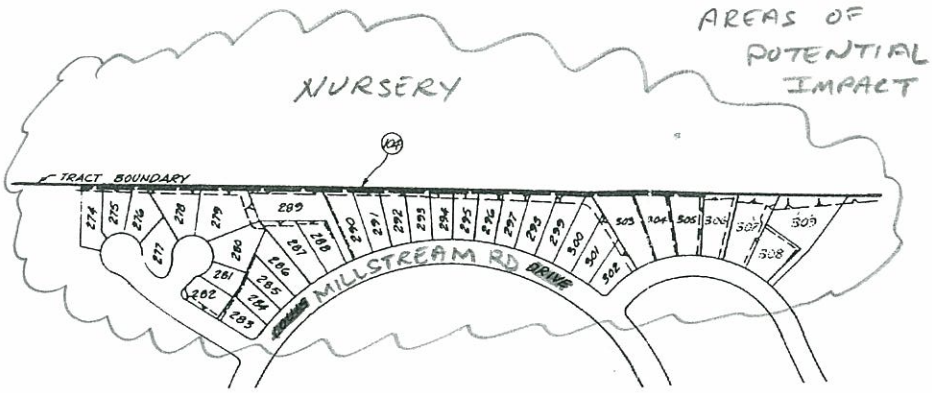
EXISTING POWER COSTS FOR DOVE CREEK & TICK CREEK PUMP STATION OPERATION

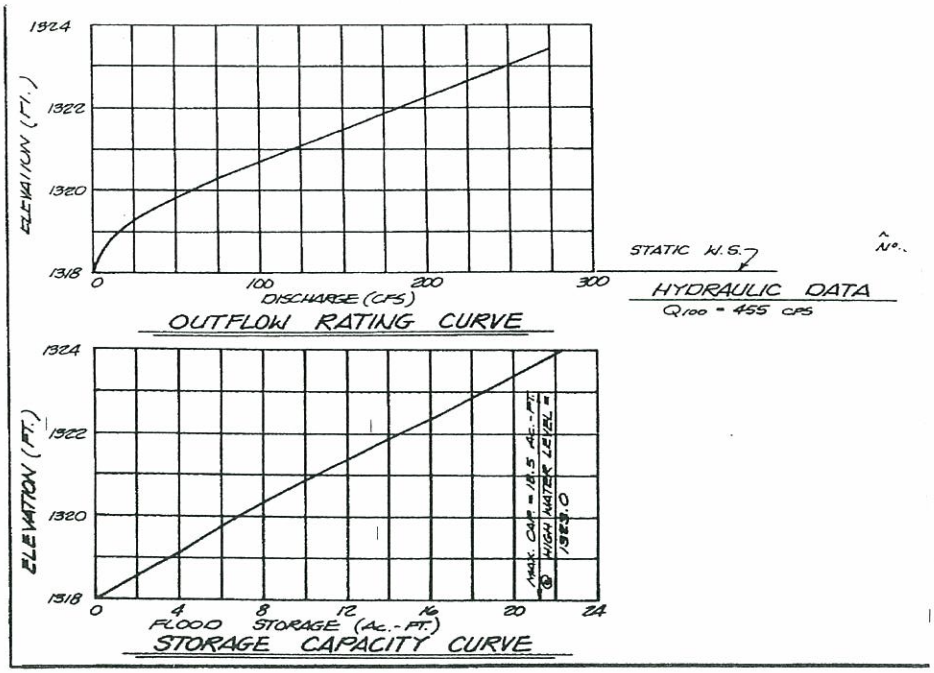
Prepared by: Karen Warner
Accounting Supervisor
Last Updated: 12/21/2010

Trabuco Canyon Water District

Shadow Rock Detention Basin Facility – Urban Water Recovery Project

Flood Damage Reduction Benefits Cost Opinion





			ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
			STORM DRAIN IMPROVEMENTS FOR FACILITY L11-B01 STORAGE BASIN No 1	
			DWG. No L11P04-7/3-1	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION	SHEET
REVISIONS			DATE	7/7
DESIGN BY - DLS			SCALE	DATE
DRAWN - RTC	CHECKED		AS SHOWN	CONS. No. L11-B01

TCWD SHADOW ROCK DET. BASIN FACILITY

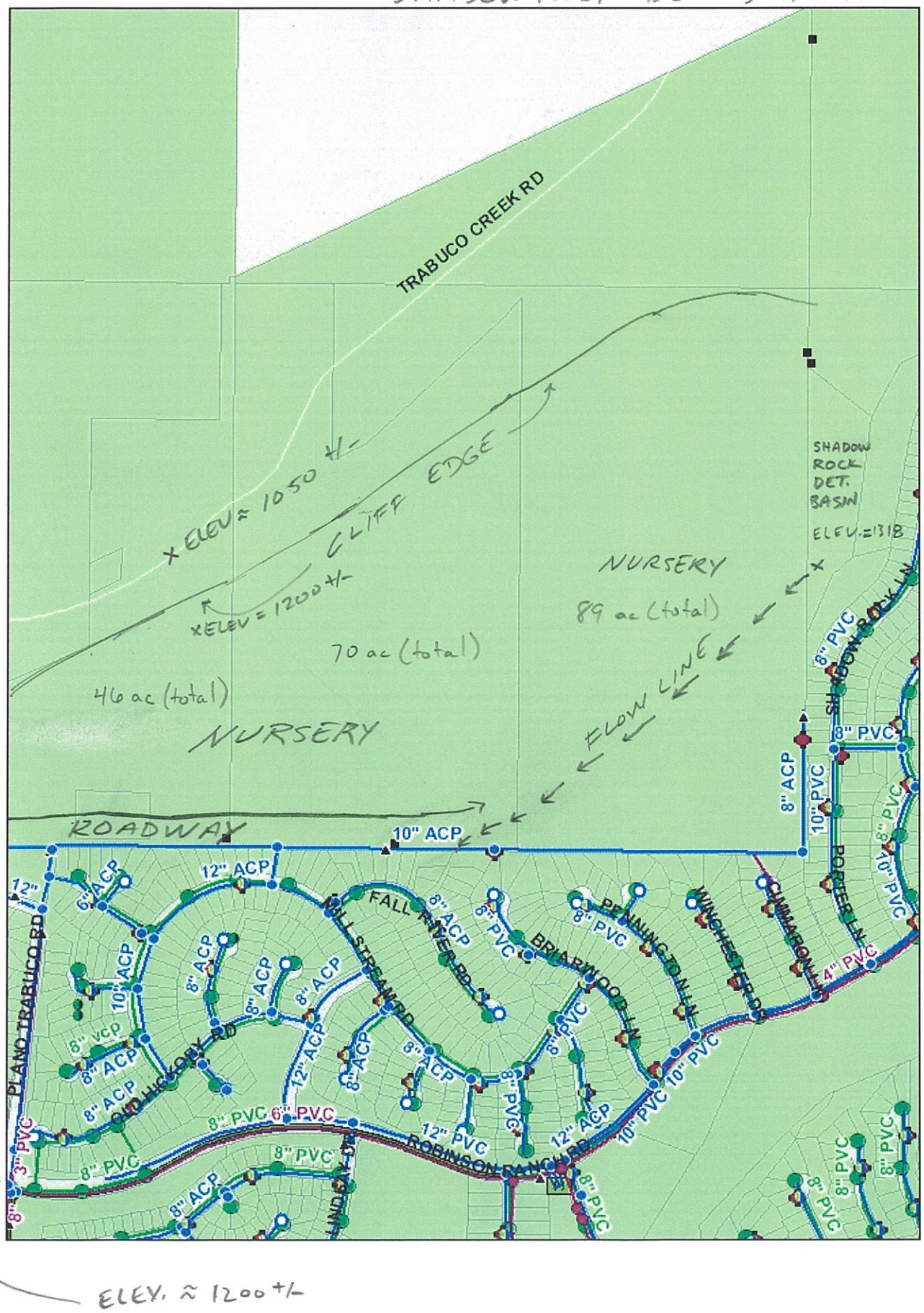


Table 18 - Event Damage (Example)

Hydrologic Event	Event Probability	Damage if Flood Structures Fail	Probability Structural Failure ASSUMED		Event Damage		Event Benefit (Million $)
			Without Project	With Project	Without Project	With Project	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
					(c) x (d)	(c) x (e)	(f) – (g)
10-Year	0.1	$15,000	0.5	0.25	$7,500	$3,750	$3,750
25-Year	0.04	$225,000	0.75	0.375	$168,750	$84,375	$84,375
100-Year	0.01	$2,000,000	1	0.5	$2,000,000	$1,000,000	$1,000,000

Damage Assumptions	Homes Damaged	Typ. Home Value	% Damage to Homes	Est. Home Damage	Nursery Damage	Total Damage
10 year	3	$500,000	1	$15,000	$ -	$15,000
25 year	9	$500,000	5	$225,000	$ 25,000	$250,000
100 year	40	$500,000	10	$2,000,000	$ 50,000	$2,050,000

Note: If FRAM or other models are used to estimate expected annual damage, this table is NOT required. It was included in the PSP to illustrate how event damage is used to plot loss frequency curves (Figure 1 in which are required to estimate expected annual damage (the area under the loss-frequency curves).

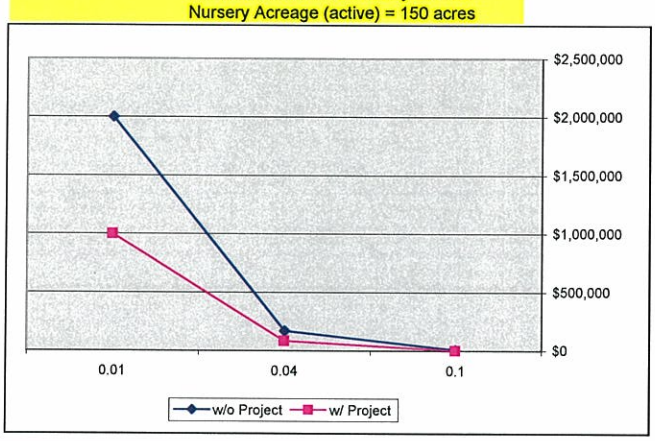
Fram Model can be found here: http://www.water.ca.gov/irwm/integregio_resourceslinks.cfm

EAD

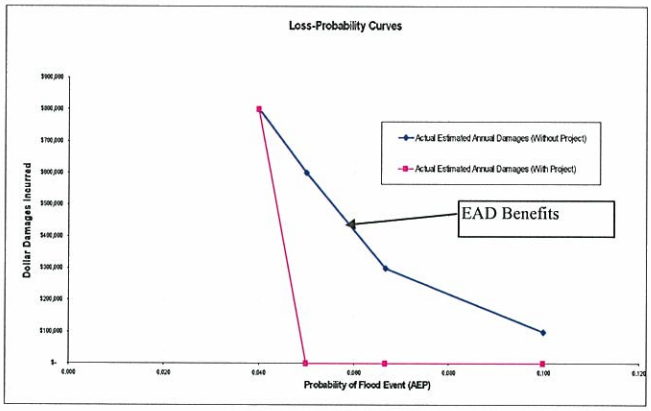
Calculation Basis:
Small Project
Hand Calculation

Calculations based on area under the curve method using triangles and difference in areas and using columns and data from Table 18
No of homes in area of analysis = 40
Nursery Acreage (active) = 150 acres

Probability Structural Failure Values Assumed Reduced by 50 % with project due to proper maintenance and operation of facility per original design



PROJECT



EXAMPLE

Figure 1 - Loss-Probablility Curves

$\Delta EAD = 32,307 - 16154 = \$16,153$

$EAD_{w/o} = \frac{1}{2}(2,000,000 - 168,750)(0.04 - 0.01) + \frac{1}{2}(168,750 - 7500)(0.1 - 0.04) = 32,307$

$EAD_{w/} = \frac{1}{2}(1,000,000 - 84375)(0.03) + \frac{1}{2}(84,375 - 3750)(0.06) = 16154$

12/20/10

ENDIX D

6% Interest Factors for Discrete Compounding Factors

	SINGLE PAYMENT		UNIFORM SERIES					
	Compound Amount Factor	Present Worth Factor	Capital Recovery Factor	Present Worth Factor	Sinking Fund Factor	Compound Amount Factor	Gradient Factor	
N	$(F/P, 6, N)$	$(P/F, 6, N)$	$(A/P, 6, N)$	$(P/A, 6, N)$	$(A/F, 6, N)$	$(F/A, 6, N)$	$(A/G, 6, N)$	N
1	1.0600	.94340	1.0600	.9434	1.0000	1.0000	.0000	1
2	1.1236	.89000	.54544	1.8333	.48544	2.0599	.4852	2
3	1.1910	.83962	.37411	2.6729	.31411	3.1835	.9610	3
4	1.2624	.79210	.28860	3.4650	.22860	4.3745	1.4269	4
5	1.3382	.74726	.23740	4.2123	.17740	5.6370	1.8833	5
6	1.4185	.70496	.20337	4.9172	.14337	6.9751	2.3301	6
7	1.5036	.66506	.17914	5.5823	.11914	8.3936	2.7673	7
8	1.5938	.62742	.16104	6.2097	.10104	9.8972	3.1949	8
9	1.6894	.59190	.14702	6.8016	.08702	11.491	3.6130	9
10	1.7908	.55840	.13587	7.3600	.07587	13.180	4.0217	10
11	1.8982	.52679	.12679	7.8867	.06679	14.971	4.4210	11
12	2.0121	.49698	.11928	8.3837	.05928	16.869	4.8109	12
13	2.1329	.46884	.11296	8.8525	.05296	18.881	5.1917	13
14	2.2608	.44231	.10759	9.2948	.04759	21.014	5.5632	14
15	2.3965	.41727	.10296	9.7121	.04296	23.275	5.9257	15
16	2.5403	.39365	.09895	10.105	.03895	25.671	6.2791	16
17	2.6927	.37137	.09545	10.477	.03545	28.212	6.6237	17
18	2.8542	.35035	.09236	10.827	.03236	30.904	6.9594	18
19	3.0255	.33052	.08962	11.158	.02962	33.759	7.2864	19
20	3.2070	.31181	.08719	11.469	.02719	36.784	7.6048	20
21	3.3995	.29416	.08501	11.763	.02501	39.991	7.9148	21
22	3.6034	.27751	.08305	12.041	.02305	43.390	8.2163	22
23	3.8196	.26180	.08128	12.303	.02128	46.994	8.5096	23
24	4.0488	.24698	.07968	12.550	.01968	50.814	8.7948	24
25	4.2917	.23300	.07823	12.783	.01823	54.862	9.0719	25
26	4.5492	.21982	.07690	13.003	.01690	59.154	9.3412	26
27	4.8222	.20737	.07570	13.210	.01570	63.703	9.6027	27
28	5.1115	.19564	.07459	13.406	.01459	68.525	9.8565	28
29	5.4182	.18456	.07358	13.590	.01358	73.637	10.102	29
30	5.7433	.17412	.07265	13.764	.01265	79.055	10.341	30
31	6.0879	.16426	.07179	13.929	.01179	84.798	10.573	31
32	6.4531	.15496	.07100	14.083	.01100	90.886	10.798	32
33	6.8403	.14619	.07027	14.230	.01027	97.339	11.016	33
34	7.2507	.13792	.06960	14.368	.00960	104.17	11.227	34
35	7.6858	.13011	.06897	14.498	.00897	111.43	11.431	35
40	10.285	.09723	.06646	15.046	.00646	154.75	12.358	40
45	13.764	.07265	.06470	15.455	.00470	212.73	13.141	45
50	18.419	.05429	.06344	15.761	.00344	290.32	13.796	50
55	24.649	.04057	.06254	15.990	.00254	394.14	14.340	55
60	32.985	.03032	.06188	16.161	.00188	533.09	14.790	60
65	44.142	.02265	.06139	16.289	.00139	719.03	15.160	65
70	59.071	.01693	.06103	16.384	.00103	967.86	15.461	70
75	79.051	.01265	.06077	16.455	.00077	1300.8	15.705	75
80	105.78	.00945	.06057	16.509	.00057	1746.4	15.903	80
85	141.56	.00706	.06043	16.548	.00043	2342.7	16.061	85
90	189.44	.00528	.06032	16.578	.00032	3140.7	16.189	90
95	253.52	.00394	.06024	16.600	.00024	4208.7	16.290	95
100	339.26	.00295	.06018	16.617	.00018	5637.8	16.371	100